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AN ANALYSIS OF THE MANAGEMENT OF MILITARY AND CIVIL SERVICE PERSONNEL TO DELINEATE INHERENT PROBLEMS WHICH DEGRADE LOGISTICS MANAGEMENT

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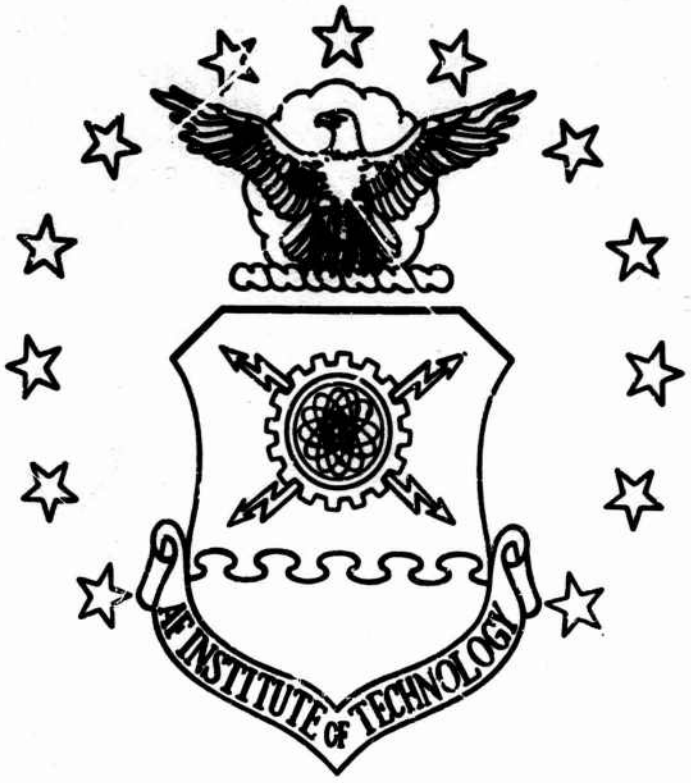
Wright-Patterson Air Force Base, Ohio

7 March 1973



UNITED STATES AIR FORCE

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Wright-Patterson Air Force Base, Ohio

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A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

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In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

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CHAPTER I

INTRODUCTION

Problem Statement

The potential for conflict between military personnel and civil servants at the working level is a constant threat to the Air Force manager. The probability and magnitude of this conflict depends to a substantial degree on how these people perceive each other. (24:112) When a manager has adequate knowledge of how the people working for him perceive their interrelationships, and what factors affect their perception, he is in a better position to cope with conflict should it arise.

> Just as research is essential to industrial progress and the advancement of science, so is research indispensable to the field of industrial personnel relations. Along this line there is urgent need for the establishment of real facts on which to base decisions. The only way to secure such data is through research. (43:14)

However, the Air Force manager presently does not have these facts available to him. The immediate problem is that no systematic research has been conducted to determine how professional military and civil servants generally perceive their interrelationships within the working environment, and what factors are related generally to their perceptions.

Background

Management within the Department of Defense, as in most organizations, involves the coordination of human and material resources toward a common goal or objective. (11:6) The Department of Defense, however, faces many situations which are not normally encountered in civilian organizations. For example, peculiar personnel problems arise from the fact that the Department of Defense combines two distinct career services, the professional military and civil servants, as its human resource input. (13:22)

The "military-civil service mix" is not new to the Department of Defense. In fact, it was customary to use civilian scouts with the Continental Army. (39:10) However, the use of civilian employees within the Department of Defense has greatly expanded since the days of the Continental Army. As of July 1972, the United States Air Force alone employed over 245,000 civilian personnel, which constituted approximately 27 percent of its total human resource input. (80) Likewise, the concept of the use of civil servants has evolved over time to the present one of the military-civil servant team. That is, "there are by and large no separate and distinct activities that are wholly composed of military or wholly composed of civilian personnel." (39:14) Within this environment, military personnel and civil servants often work side by side where effective operations hinge upon close cooperation and understanding between these two career services. Factors

that may degrade this relationship also would tend to degrade the overall management function. (13:22)

Although the authors were unable to uncover any literature directly analyzing the relationship of military and civil service personnel, various studies have suggested that this area may be one of definite concern. For example, in a 1970 research study, Captain Thomas J. Markal and Captain Daniel C. Viney found correspondence indicating that many junior officers displayed disgust and concern relative to the working environment within the Air Force Logistics Command (AFLC) as expressed by the following: "Although perhaps more imagined than real, they (junior officers) were quite vociferous relative to the dedication/motivation of civil servants which they observed on a daily basis." (37:53) Additionally, a 1968 survey conducted by the San Antonio Air Materiel Area Junior Officer Council Retention Committee found that "the opinion was frequently voiced (among junior officers) in the essay questions that civilians were 'in the way of getting anything done.'" (44:6) Finally, a draft copy of the results of a recently completed study conducted by the Hq AFLC Inspector General to evaluate junior officer utilization, career progression, career motivation and training at four AFLC Air Materiel Areas (AMAs) found among other things that

> . . . the relationship of AFLC civilian and military personnel is not clearly understood by all AFLC junior officers. Interviews with junior officers at the inspected AMAs as well as analyses of junior officer questionnaires indicated a

continuing conflict between junior officers and their civilian supervisors and co-workers. (53:5)

The relationship of military and civil servants is complicated by the fact that each group has a separate and distinct personnel system governed by separate rules and regulations. The perception by each group of the inherent differences in these personnel systems provides a seed for conflict which could manifest itself in the relationship between military personnel and civil servants.

Conflict as used in this study is defined as "tensions, hostile attitudes, and antagonistic interests between groups, even if the phenomena have not resulted in open struggle." (1:67) Although some conflict is positive and results in a higher level of performance, there is a point of diminishing returns, beyong which as the degree of conflict increases the level of performance decreases. (10:437) Eugene Litwak in an article in the "American Journal of Sociology" stated " . . . if conflict arises in the traditional bureaucratic organization, it is likely to impede the coordinated pursuit of objectives." (14:391) Since the Department of Defense has been assumed to be the " . . . prototype of the structured bureaucracy . . . " (11:158) the point of diminishing returns resulting from conflict would apparently be very low indeed.

Perception which is defined to be " . . . the attachment of meaning to what is sensed . . . " (26:417) is related to the motivational origins of conflict since it

is "what is perceived" rather than "what is" that elicits human behavior. (11:217) Thus, it would stand to reason that if military personnel and civil servants perceive the inherent differences in the two personnel systems unfavorably, when comparing these differences of their respective systems to the other's system, then this unfavorable perception could result in tension or hostile attitudes (conflict) which could have a degrading effect on their relationships in the working environment.

In reviewing the literature, the authors found reference to two government organizations where, in fact, the above situation seemed to exist. One organization was the United States State Department, which has been called a "hydra-headed thing" because of its combining of two personnel systems, the Foreign Service and the Civil Service. A 1969 article in the Wall Street Journal described the friction within the State Department that was caused by having the two separate personnel systems. (31:28) The other organization was a U.S. Navy research and development organization at China Lake, California. A study conducted in 1965 indicated " . . . conflicts which result from the attempt to unify a research 'team' while keeping military elements of the team visible and separate." (30:123) Two specific barriers to the unification of military and civilian personnel cited in the study were:

> (1) The custom of dressing military in uniform when they are in essentially nonmilitary roles . . . , and (2) the short tours of duty are another

> barrier to integration, since military personnel are often reassigned somewhere else before there is any real payoff for the effort needed to make them truly effective members of a team. (30:127-128)

Although some literature is available which delineates differences in the military-civil service personnel systems of the Air Force, none of the literature attempts to determine how the differences in the two personnel systems are perceived by military and civil service personnel. Nor does any of the available literature attempt to relate the inherent differences in the two personnel systems with the relationship of military personnel and civil servants. Providing the initial step toward filling the void in the available literature will be the basis of this thesis.

Scope

Logistics management, like most areas of management, ultimately involves "getting things done by working with people and physical resources in order to accomplish objectives." (11:7) Problems involved in managing civil servants and military personnel are associated primarily with the human resource input to the total management function. Although numerous different problem areas can exist concerning the management of human resources, the authors limited this study to an analysis of the relationship of military and civil service personnel in the working environment. This analysis was further limited, because of time constraints, to the Department of the Air Force. It

should be mentioned that the potential for problems associated with the management of military personnel and civil servants exists throughout the Department of Defense. However, because of the limitations outlined in this section, the authors will only be able to state specific conclusions about those military personnel included in the population selected for study. These conclusions will be based on sample data collected during this research effort. Specific emphasis was placed on identifying inherent differences associated with the military-civil service personnel systems and determining if a relationship existed between these differences and the relationship of military and civil servants in the working environment as perceived by military personnel. A thorough analysis of the relationship of military and civil service personnel would of necessity also include the perceptions by civil servants of their relationship with military personnel in the working environment. However, because this was the initial study in this area, the authors wished to insure the creditability of this effort within the imposed time constraints; therefore, this thesis was limited to an analysis of the perceptions of military personnel relative to their relationship with civil servants in the working environment. Specifically this study was limited to the perceptions of Air Force officers relative to their relationship with civil servants in the working environment. No attempt was made to collect this information from civil servants or enlisted personnel.

Further, Air Force officers were not restricted to any specific grade or category of civil servants when asked to rate their perception of their relationship with civil servants.

The population selected for study was limited to Air Force officers in logistics related specialties (Table 1) in the grades of O-1 (Second Lieutenant) through O-6 (Colonel) who were assigned to the Air Force Logistics Command. The above limitations were imposed for two reasons. First, to allow for a more in-depth and meaningful analysis of this topic area. Secondly, the authors were of the opinion that since AFLC's mission is " . . . to provide worldwide technical logistics support to the Air Force's aerospace weapon systems" (84:3) and since approximately 103,500 civil servants were assigned to AFLC as of June 30, 1972 (47), any degrading of logistics management because of inherent differences in the management of military and civil servants would be critical within AFLC. It should be emphasized that the authors, throughout the remainder of this thesis, will use the terms military officer and Air Force officer to refer to the population described above.

Finally, this thesis is not concerned with the philosophy of the military-civilian manpower mix within the Department of Defense or the topic of civilian control of the military at the policy making level.

TABLE 1

Logistics Related Specialties

Within The

Air Force Logistic. Command

AFSC	Utilization Field
31XX	Missile Maintenance
401X/402X/403X/404X/409X	Avionics & Aircraft Maintenance
46XX	Munitions
60XX	Transportation
62XX	Supply Services
63XX	Fuels
64XX	Supply Management
65XX	Procurement Management
66XX	Logistics
004X	Director of Logistics

Source: Hq AFLC, Military Personnel (DPMAO)

Objectives

The overall objective of this thesis was to furnish the Air Force manager, whether military or civil servant, with information that would be useful in avoiding or solving management problems concerning military-civil servant relationships. More specifically, this study was designed:

1. To delineate the inherent differences between the military and civil service personnel systems.

2. To determine the Air Force officer's perception of his relationship with civil servants within the working environment.

3. To determine how the Air Force officer perceives specific areas of the military personnel system as compared to those of the civil service personnel system.

4. To determine if the Air Force officer's perception of his relationship with civil servants is related to his perception of specific areas of the military personnel system when compared to those of the civil service personnel system.

These objectives were accomplished by answering one research question and testing three hypotheses.

Research Question

The research question posed to satisfy the first objective of this thesis was:

What are the inherent differences between the military and civil service personnel systems?

Hypotheses

Testing of the following hypotheses, stated in null form*, provided the information necessary to fulfill the second, third and fourth previously stated objectives:

1. The Air Force officer perceives his relationship with civil servants within the working environment in a favorable light.

2. The Air Force officer's perception of each of the inherent differences between the military and civil service personnel systems is indifferent. (This hypothesis was tested for each of the delineated inherent differences.)

3. The Air Force officer's perception of his relationship with civil servants is not related to his perception of the inherent differences in the two personnel systems.

---

*An explanation of hypothesis testing procedures is contained in Appendix A.

CHAPTER II

METHODOLOGY

Nature and Sources of Data

Necessary to the progress of this thesis was the collection of data concerning the inherent differences between the military and civil service personnel systems. Of primary importance to the authors in identifying these inherent differences in the two personnel systems were two research papers, "Problems Associated With the Management of the Military and Civilian Working Force" by Paul H. Nierstheimer and "A Study of Civil Service-Military Relationships" by William D. Patzig, Major USAF, both of which identified and discussed differences between the military and civil service personnel systems. From these two papers, the authors extracted those differences in the two personnel systems which the authors considered to be inherent (structural or involved in the constitution or essential character of something (8:1163)) to the personnel systems. Specific information concerning these differences was then extracted from a review of the present literature including various Air Force Manuals and Regulations governing these aspects of the military and civil service personnel systems. In addition to answering the research question, these data were

essential to the fulfillment of the remaining objectives.

The primary data needed to test the hypothesis were the Air Force officer's perception of his relationship with civil servants and his perception of the differences between the two personnel systems. The instrument used for collecting this data was a two-part mailed questionnaire which is described in a later section of this chapter. The questionnaire was sent to a representative sample of Air Force officers in logistics-related fields assigned to the Air Force Logistics Command.

Sampling Technique and Survey Procedures

A listing of the 977 officers in the population was obtained from the Headquarters AFLC Military Personnel Section (DPMAO). In order to allow for a possible poor response rate, the authors arbitrarily selected a sample size of 400 officers. However, because of printing errors, only 385 usable questionnaires were available to the authors. Thus, the sample size was reduced to 385.

The authors felt that rank, being somewhat an indication of age, would more meaningfully relate to perception than other possible factors. Therefore, in order to achieve a more valid estimate of the perceptions held by the population in general, the authors stratified the population by rank prior to sampling. Weights (percentages) were then assigned according to the relative frequency of each rank within the population. Then, within each stratification,

a weighted random sample was taken to select the individuals to be included in the survey.

The procedures utilized by the authors to accomplish the random selection of individuals to be sampled was as follows. The individuals in each stratification were numbered from 1 to N (where N was the maximum number of individuals in that stratum). A computer program was constructed to generate a series of pseudo-random numbers from 1 to N + X (where X was an arbitrary quantity to allow for repetitions in the sequence of pseudo-random numbers). The authors then matched the pseudo-random numbers with the numbers assigned to the individuals within each stratum of the population. The population and sample composition are depicted in Table 2.

Using telephone directories and the military locator service of the 6 AFLC bases (Wright-Patterson AFB, Ohio; Robins AFB, Georgia; Kelly AFB, Texas; Tinker AFB, Oklahoma; Hill AFB, Utah, and McClellan AFB, California), addresses were obtained for the 385 officers selected for the survey. Of the 385 questionnaires mailed, 323 were returned to the authors. Table 3 shows the number of questionnaires mailed to each stratum of the sample and the response rate for each group.

The Questionnaire

The technique used to collect data for hypotheses testing was a mailed questionnaire. A copy of the

TABLE 2

Sample Composition of Officers in

Logistics Related Specialties Within

The Air Force Logistics Command

Rank	Number Assigned*	Percent of Total Assigned	Number in Sample (% of total assigned x 385)
Lieutenant	118	12	46
Captain	414	42	163
Major	145	15	58
Lt. Colonel	168	17	66
Colonel	132	14	52
Total	977	100%	385

*Source: Hq AFLC, Military Personnel (DPMAO)

TABLE 3

Survey Response

By Rank

Rank	Number Surveyed Via Mailed Questionnaire	Number of Usable Responses	Number of Non-usable Responses*	Percent of Usable Responses
Lieutenant	46	42	0	91.30
Captain	163	120	12	73.62
Major	58	47	2	81.03
Lt. Colonel	66	37	12	56.06
Colonel	52	45	6	86.23
Total	385	291	32	75.58%

*A response was determined to be non-usable when the questionnaire was not fully completed by the individual prior to being returned to the authors.

questionnaire is included in Appendix B. Since no questionnaire was available which addressed the subject of this research effort, the authors were forced to design a questionnaire specifically suited to this study. The general format for this questionnaire, however, was adopted from one used by Reginald W. Lyng and Arthur D. Smith to test the factors influencing decisions to enter the AFIT Graduate Logistics Program. (36:69) Further, in an effort to reduce any confusion on the part of the individuals in the sample relative to the wording or content of the questionnaire, the authors had several officers in the Graduate Logistics Program critique the questionnaire to reduce or eliminate any ambiguity prior to the final printing of the survey forms.

Section I of the questionnaire provided biographical data which enabled grouping of the respondents. The specific biographical data requested from the individuals sampled were those which the authors felt would most influence the respondent's perception of civil servants. Data obtained from this section were also employed to test the third hypothesis.

Section IIA of the questionnaire furnished the data necessary to test the first null hypothesis:

> The Air Force officer perceives his relationship with civil servants within the working environment in a favorable light.

Prior to the actual design of this section of the questionnaire, the authors performed an extensive review of the

literature to determine the appropriate technique to measure perception. From this review, the authors found that the semantic differential technique was often used in research efforts to measure perception. Because it seemed to be ideally suited for this research effort, the authors chose this technique as the tool with which they would attempt to measure the perceptions of Air Force officers. This technique is described later in this chapter.

Section IIB of the questionnaire was developed to collect the data necessary to test the second null hypothesis:

> The Air Force officer's perception of the inherent differences between the military and civil service personnel systems is indifferent.

Before developing Section IIB of the questionnaire, the research question had to be answered. That is, the inherent differences between the two systems had to be identified. The method then employed to measure the Air Force officer's perception of these differences was a series of evaluative questions much like the semantic differential technique. The respondents were asked to evaluate each inherent difference on one rather than a series of bipolar adjectives. Since only one bipolar adjective pair was used, this procedure must be considered as markedly less rigorous than the semantic differential; however, the authors felt that this technique should provide adequate data concerning the officer's general feeling toward each delineated difference. Further, it should be mentioned that the delineated

differences were listed on the questionnaire in very general terms. For example, only the words "leave policies" appear as one difference to be rated. This generality was intended to elicit the individual's perceptions of the inherent differences of the two systems and to eliminate any bias on the part of the authors regarding the differences in the two systems.

Additionally, Sections IIA and IIB provided data necessary to test the third null hypothesis:

> The Air Force officer's perception of his relationship with civil servants is not related to his perception of the inherent differences in the two personnel systems.

Finally, the questionnaires were designed and administered so that the authors would not be able to identify any specific individual responding or not responding to the survey. The authors felt that a completely anonymous response would be more favorably received by the individuals being surveyed. Thus, the authors did not assign control numbers to the questionnaires nor was any other attempt made to identify the responses of specific individuals.

The Semantic Differential

The semantic differential, developed by Charles E. Osgood, is a method of observing and measuring the meaning of things, usually concepts. (12:564) As a method of measurement, "It has been shown to be sufficiently reliable and valid for many research purposes, easily adapted to the needs of the researcher, quick and economical to administer

and simple to score." (36:7)

The actual semantic differential consists of a basic concept to be rated by a number of scales. Each scale is a bipolar adjective pair (e.g., good-bad) chosen for its relevance to the concept being tested and the judgment factor required. Each judgment factor adds a different dimension to the overall meaning of the concept. Osgood has identified three primary judgment factors: evaluative, interpreted as "goodness"; potency, interpreted as "strength," and activity, interpreted as "motion or action." (12:567) Thus, a respondent's meaning of the concept is represented in a three-dimensional semantic space. It should be noted that the evaluative factor is considered the most important in the measurement of attitude, and is often the only factor included in studies of attitudes or values. (12:569) The use of only one factor suggests that the meaning is represented in one, rather than three dimensions.

Spaces are provided between each bipolar adjective pair for the respondent to rank the relationship of these adjectives to the concept being tested. The rankings follow a one to seven scale. The number seven is associated with the most favorable end of the scale, the number four is at the centroid or assumed point of neutrality, and the number one is associated with the unfavorable end of the scale. Thus, a mean and variance can be drawn for each concept and its related scales. These calculations represent a relative measure of perception.

Prior to the use of the semantic differential, the authors made the following assumptions about the interval properties of the bipolar adjective scales:

> 1. When an integer score is assigned as a concept's scale position on a particular scale, the property of equal intervals within that scale is assumed.
>
> 2. When a measure is taken over several scales, equal intervals between scales is assumed.
>
> 3. It is assumed that the point of neutrality falls at the same place on each scale, namely at the centroid. (23:161)

The two basic concepts to be rated in this study were: (1) the Air Force officer's perception of his relationships with civil servants within the working environment and (2) the Air Force officer's perception of specific areas of the military personnel system as compared to the same areas of civil service personnel system.

The bipolar adjectives selected for inclusion in this thesis were drawn primarily for their relevance to the concepts being tested and to the evaluative factor. These adjectives have been empirically tested and validated as measuring the evaluative factor. (16:37) Based on this empirical evidence, the authors assumed their relevance to the study at hand. In the actual questionnaire, a number of adjective pairs were reversed at random (placing the favorable adjective on the left rather than the right side of the scale) to counteract response bias tendencies. (12:571)

The selection of only one factor enabled the authors to run one-dimensional analysis, rather than multi-dimensional

analysis, on the collected data. This and the fact that a sample mean and variance were derived allowed the authors to employ the Student's t-tests of the means, once they determined that the distribution of rankings was demonstrably normal. (16:99) The specific procedure employed to demonstrate this normality is included in Appendix C.

Data Collection and Tabulation

A self-addressed return envelope was included with each questionnaire to assist the respondents in returning the survey to the authors. As the questionnaires were returned, the authors reviewed them to determine if all questions or concepts had been answered or completed. If the questionnaire was determined to be complete, an overlay was used to code the responses prior to any analysis of the data. An example of the overlay is shown in Appendix D.

Using the overlay as described above, the usable responses to each question or concept were key punched onto AF Forms 1500, ADP General Purpose Cards. One AF Form 1500 was key punched for each usable questionnaire. These cards served as the input medium for each of the computer programs used as tools for analysis of the data. These programs will be described in detail in Chapter IV of this thesis.

CHAPTER III

INHERENT DIFFERENCES BETWEEN THE MILITARY AND CIVIL SERVICE PERSONNEL SYSTEMS

Overview

The purpose of this chapter is to answer the research question posed by the authors. To accomplish this purpose the authors will present the areas of the two personnel systems where inherent differences exist. These areas for each of the respective personnel systems will be discussed and the major differences between these areas for the personnel systems will be explored.

The specific areas and their differences will be considered in the same order as presented on the questionnaire described in the previous chapter. However, since entire manuals and regulations have been written on each of these areas for each of the personnel systems, the authors will present only what they perceive to be the major aspects of a particular area in the respective personnel systems, and then describe how this area differs in the other personnel system.

When discussing the military personnel system, unless otherwise indicated, the discussion will center around the procedures applicable to military officers. Likewise,

unless otherwise indicated, the discussion of the civil service personnel will center around those rules and procedures applicable to personnel under the General Schedule (GS).

Pay

The pay systems for military personnel and civil servants within the Air Force are extremely different. Not only are the rates of pay different for the two personnel systems, but the basic structure of the pay systems is different. That is, the military officer's pay is composed of three principle different amounts of pay which are totaled to form his monthly pay. The first amount is the officer's base pay, which is based on his rank and years of service. The second area of pay is the Basic Allowance for Subsistence (BAS) which with only minor exceptions is $47.88 per month. (69:3-3) The third area is the Basic Allowance for Quarters (BAQ) which is provided to military personnel when government quarters are not available. The amount of BAQ received by the military officer is dependent upon his rank and his number of authorized dependents. (69:3-15) Further, some officers receive incentive pay (e.g., officers on flying status receive monthly flight pay) in addition to base pay and allowances.

Excluding overtime pay (which will be covered in a later section of this chapter), the amount of pay the civil servant receives is one sum which is based on his grade and

current step rate. The step rate is determined by the individual's length of service and performance records. (77:2)

Another basic difference in the two pay systems is the quantity upon which the military officer and the civil servant must pay Federal income tax. The officer only pays Federal income tax on his base pay and incentive pay (e.g., flight pay), whereas the entire amount of the civil servant's pay is subject to the Federal income tax. (64:2)

Any comparison between military pay and civil service pay is difficult to make since there is no regulation or manual which lists an official standardized method for equating civil service and military ranks and grades. However, in spite of this difficulty, it has been the authors' experience that comparison between the military and civil service pay systems is most often done on an individual basis by the members of the respective personnel systems. This is especially true when two individuals (one military and one civil servant) work side by side but receive different amounts of pay for their work. Although, as mentioned above, no official comparison of military and civil service ranks and grades was available, the authors were able to obtain an unofficial comparison of military officer ranks and GS grades from the 2750th ABW Civilian Personnel Branch (DPCC) to aid the reader in making comparisons between the two pay systems. Table 4 displays the unofficial comparisons of military ranks for the officers in the population to the equivalent civil service GS

grade, while Table 5 gives the various pay rates for the two groups. It should be mentioned that Table 5(A), Military Officer Compensation, shows Regular Military Compensation (RMC) for officers, which is defined to be the sum of base pay, BAS, BAQ, and the value of the tax advantage on these two allowances. RMC is used to give an approximate civilian salary equivalent for each military grade. (27:18) The authors will leave it to the reader to make comparisons between the two pay systems.

TABLE 4

Unofficial Comparison of Military Officer Ranks And Equivalent Civil Service Grades

Military	Civil Service
Colonel (0-6)	GS15
Lieutenant Colonel (0-5)	GS14
Major (0-4)	GS13
Captain (0-3)	GS12
Lieutenant (0-2 & 0-1)	GS11

Source: 2750th ABW Civilian Personnel Branch/DPCC

TABLE 5

Comparison of Military Officer Compensation To Pay Rates of the General Schedule

(A)

Military Officer Compensation

Pay Grade	Years of Service													
	Under 2	2	3	4	6	8	10	12	14	16	18	20	22	26
0-6	0	0	0	0	0	0	21667	21667	22266	25162	26261	26784	28094	30183
0-5	0	0	0	18826	18826	18826	19290	20114	21208	22523	23605	24202	24925	24925
0-4	0	0	16516	16516	16757	17371	18317	19158	19876	20591	21070	21070	21070	21070
0-3	12387	13478	14216	15449	16060	16543	17280	17986	18351	18351	18351	18351	18351	18351
0-2	10901	11611	13372	13736	13976	13976	13976	13976	13976	13976	13976	13976	13976	13976
0-1	9365	9641	11084	11084	11084	11084	11084	11084	11084	11084	11084	11084	11084	0

Source: Air Force Times, Vol. 33, No. 22, January 3, 1973, page 18

(B)

Pay Rates of the General Schedule

Grade	General Schedule – Basic Per Annum Rates									
GS	Step 1	2	3	4	5	6	7	8	9	10
15	25583	26436	27289	28142	28995	29848	30701	31554	32407	33260
14	21960	22692	23424	24156	24888	25620	26352	27084	27816	28548
13	18737	19362	18897	20612	21237	21862	22487	23112	23737	24362
12	15866	16395	16924	17453	17982	18511	19040	19569	20098	20627
11	13309	13753	14197	14641	15085	15529	15973	16417	16861	17305

Source: 2750th ABW Civilian Personnel Branch/DPCRA

Leave Policies

The procedures for earning and using leave are different for military and civil service personnel. The military personnel system is designed to allow members to accrue 2½ calendar days for each month of active service. (65:1-1) Thus, military personnel, regardless of rank, accrue 30 calendar days of leave per year if they have been on active duty for a full year. However, the amount of annual leave that can be accrued by a civil service employee depends directly on the length of service of that employee. Civil servants are assigned to leave earning categories as follows:

> Category 1 - Employees with less than 3 years of service.
>
> Category 2 - Employees with 3 but less than 15 years of service.
>
> Category 3 - Employees with 15 or more years of service. (58:3)

Further, a continuous employment period of 90 days in either a pay or non-pay status is required before any leave can be credited to or used by a civil service employee. (58:3) After this 90-day period an employee is credited with annual leave as shown in Table 6.

TABLE 6

Hours Annual Leave Credit for Civil Servants Per Pay Period

Leave Category	First 25 Pay Periods in Calendar Year	Last Pay Period in Calendar Year
1	4	4
2	6	10
3	8	8

Source: AF Regulation 40-630, page 3

Sick leave for military personnel is nonchargeable leave; therefore, they earn no specific amount of sick leave per month as it is granted to military personnel upon the written recommendation of a physician because of sickness. (65:3-1) However, all fulltime civil service employees, regardless of grade, receive a half day of sick leave per pay period. Further, under the civil service personnel system, sick leave is chargeable leave. (58:4)

Under the military personnel system, annual leave is charged to personnel by the day with the day of departure from duty being counted as a leave day and the day of return from leave being counted as a duty day. Further, military personnel are charged leave for all normal off-duty days and holidays which occur during their authorized leave period. (65:1-9) However, under the civil service system employees are only charged sick or annual leave for absences on regular workdays, i.e., days on which they

normally would work and receive pay. No leave is charged to an employee's account for holidays and nonworkdays established by Federal Standards or administrative order. Also, leave is charged to the civil servant by the hour rather than by the day as with the military system. (49:630-6)

Medical Benefits

Medical care including inpatient, outpatient, dental care and related professional services is often cited as one of the many incentives and benefits of a military career. Except for minimal subsistence charges, medical care is provided free of charge to active duty and retired members of the Air Force and their authorized dependents. (66:5-6) This medical care is provided at military facilities or through funded programs at civilian facilities. In either case, military personnel are required to spend little money for these medical services.

However, this is not the case for the civilian employee. Civilian employees may receive, at little or no expense, emergency care, care for on-the-job illnesses or injuries, and some outpatient care from military medical facilities. This outpatient care is limited to:

(a) Pre-employment physical examinations.

(b) Immunizations (when authorized).

(c) Examinations following sickness absenteeism, when indicated.

(d) Examinations upon request of employee's supervisor or competent medical authority.

(e) Periodic examinations to determine effect of environment. (66:20)

Other than these few exceptions, the civil servant must obtain medical care at his expense from civilian facilities. However, the government, through the Federal Employees Health Benefits Program, will pay part of the cost of enrollment " . . . in a group health benefits plan with less expensive premiums and better protection . . . " (51:4) than the civil servant could get as an individual. The Federal Employees Health Benefits Program is a voluntary program designed to "protect" the civil servant and his family against the costs associated with illness or accident. (51:4) Complete details concerning this program can be found in Standard Form No. 2809-A, The Federal Employees Health Benefits Program, dated September 1969.

Retirement Plan

As with medical care, the retirement system for military personnel is one major factor which is presumed to make the Air Force an attractive career for many people. In general, military officers may retire voluntarily at any age if they have completed at least 20 years of active service. It is important to note that there is no minimum age requirement imposed upon military retirement. Further, after retirement, military personnel are entitled to the same privileges concerning medical care and the use of base facilities as they were while on active duty.

Computation of military retirement pay is based

upon a general formula which is 2½% of the officer's years of service times the monthly base pay that he would receive in his active duty grade or the highest grade in which he served satisfactorily. (78:7-3) One additional point concerning military retirement pay is worthy of mention. Specifically, while on active duty military personnel do not contribute any of their pay to their retirement fund. The government pays the entire amount of the military member's retirement pay.

The civil service retirement system presents quite a contrast to the military retirement system. Although the government contributes toward civil service retirement, the civil servant also must contribute 7% of his basic salary toward his retirement fund. However, he is guaranteed a return from this fund which is at least equal to this contribution. Further, this return may be in the form of one lump-sum payment or annuity payments. (50:1) The amount of the civil servant's retirement annuity depends primarily on the number of years of employment and his "high-3" average salary, i.e., his highest average salary during any three consecutive years of civilian service. The formula for estimating the retirement annuity for civil service employees is:

> (a) Take: 1½ of the 'high-3' average salary and multiply the result by 5 years of service.
>
> (b) Add: 1 3/4% of the 'high-3' average salary multiplied by years of service between 5 and 10.
>
> (c) Add: 2% of the 'high-3' average salary multiplied by all service over 10 years. (50:1)

For specific information concerning the civil service retirement annuity, the reader is referred to Standard Form 105, "Obligations, Benefits, and Privileges of Membership in the United States Civil Service Retirement System," dated January 1970. Further, the civil service retirement system is designed so that an employee who has worked under the retirement system for 1 year out of a 2-year period immediately preceding separation can apply for his retirement at any time if he is:

(1) Age 62 and completing at least 5 years of civilian service.

(2) Age 60 and completing 20 years of creditable service, including 5 years of civilian service.

(3) Age 55 and completing 30 years of creditable service. (57:1-2)

Note that in addition to a minimum service requirement, there is also a minimum age requirement for civil service employees.

Promotions

Promotions for military officers are a function of the number of years of service for the officer and his personnel file including efficiency reports, decorations and other personnel actions. Further, the officer's promotion is not dependent upon his current job (that is, the grade authorized for his current position). Promotion of officers to the ranks of 1st Lieutenant and Captain are almost automatic depending almost entirely on the number of years of commissioned service for the officer. After the rank of

Captain, officer's records go before promotion boards where the officer is in competition with other officers for the available promotions.

The civil service promotion system is based primarily on the increase in grade for an individual based upon a change in position. That is, a promotion can be thought of as an increase in grade to a new position rather than an increase in grade in the current position. However, there are certain programs in the civil service personnel system where an individual can be increased in grade without changing jobs. These programs are primarily training programs designed to attract qualified personnel to civil service jobs.

As with the military officer promotion system, the Merit Promotion Program within the civil service personnel system is designed to promote civil servants to a higher grade based on open competition between eligible employees. (67:1)

Transfer Policies

Under the military personnel system all officers are subject to reassignment to meet valid military manning requirements worldwide. Regulations specify criteria for minimum time periods between transfer of officers although, except for certain "controlled" tour assignments, no definite length of time for an assignment may be established. That is, officers may be selected for permanent change of

station (PCS) orders any time after satisfaction of minimum time requirements at a duty assignment. (70:2-1)

Civil service regulations stress the theme of mobility and state that " . . . commands should develop positive programs that encourage voluntary mobility on the part of employees." (56:1) Although this theme is stressed in regulations, most civil servants do not transfer between various organizations and locations as do military personnel. Generally, a civil servant applies for and accepts a job at a government installation with the same reasoning that he would use in going to work for a commercial enterprise. In fact, he may serve his entire career in the same area, living within the same community. (39:45)

Dress and Personal Appearance

Air Force Manual 35-10, Dress and Personal Appearance of Air Force Personnel, states that:

> . . . each member of the Air Force must maintain high standards of dress and personal appearance. As representatives of the Air Force, it is imperative that all members present a neat and well-groomed appearance to their fellow citizens and citizens of foreign nations in countries where they are serving. Further, the need for personal cleanliness, safety, and proper wear of the uniform on the part of all members requires that certain minimum standards be established throughout the Air Force. (60:1-4)

The manual establishes these minimum standards for uniforms, hair, sideburns, mustaches, beards and goatees, and wigs. The standards are applicable to all officers and airmen, both male and female. (60:1-4)

Air Force Regulation 30-16, Standards of Civilian Dress and Appearance, seems to allow much more freedom of personal preference relative to dress and appearance than does the applicable manual for military personnel. The standards of dress and personal appearance for civil servants must be based on legal, moral, safety or sanitary grounds and " . . . will not be based on the personal preference of the commander or his staff." (76:1) Specific mention of long hair styles is made in the regulation indicating that these styles may be banned only when they " . . . clearly interfere with the preservation of order and discipline, or the health, welfare, or morale of the assigned personnel." (76:1) The wording of this regulation is such that most hair styles may be worn by the civil servant.

In short, the officer must conform to strict standards of dress and personal appearance while the civil servant is allowed much more latitude in his style of dress and personal appearance.

Periodic Performance Evaluations

Periodic effectiveness reports for officers in the Air Force provide a file of information on the officer's performance in various assignments and duties. These reports are used as a basis for many personnel actions such as promotion, school selection and appointment to the Regular Air Force. Officer evaluation reports are incorporated

into an officer's official record and the information produced by a number of reports written by different reporting officials in various duty situations is used as an indication of the officer's progressive development. Further, these reports provide a means of comparing an officer to his contemporaries. Although Air Force Manual 36-10 lists many various time periods and/or other criterion regarding the frequency of evaluation for officers, it can be said in general that an officer receives an effectiveness report each year or he may receive a report if his reporting official changes after he has been supervised by this individual for a period of at least 90 days.

The purpose of civilian annual performance appraisals seems to differ somewhat from that of the officer evaluation. Air Force Regulation 40-451 states "a supervisor who assigns, reviews, and checks an employee's work must use performance evaluation as a basis for improving the work efficiency of his organization." (74:1) Civil servants must be informed of the performance requirements of their positions, and then evaluated as to how well these requirements are met. Additionally, evaluations must be discussed with civil servants. This discussion must provide guidance and the means necessary for the civil servant to progress. (74:1) Much more emphasis is placed upon improving effectiveness than under the Air Force performance evaluation procedures. Additionally, there is a one-year probationary or trial period associated with many civil service positions

" . . . to determine fitness for continued Federal employment." (74:8) This type of trial period does not exist in the military personnel system.

As with military performance evaluations, civil service annual performance ratings are one aspect upon which civil service personnel are considered for promotion to a higher grade under the Merit Promotion Program. However, a basic difference between the two personnel systems is that performance appraisals for civil servants are replaced each year by a new appraisal and past performance appraisals are no longer part of the employee's official records for merit promotion purposes. (82) Under the military personnel systems, past performance evaluations remain in the officer's records as Air Force Manual 36-10, Officer Evaluation Reports, states that " . . . no single report should be used as the sole criterion for any personnel action." (72:2-3) The manual then cites promotions as one type of personnel action.

Eligibility for Training

For the Air Force officer, training is a continuous process throughout his career. Educational opportunities provided to Air Force officers are designed to meet Air Force needs and enhance the officer's career progression. (68:3) AF Manual 53-1 describes "The Highlights of an Officer's Career Educational Opportunities," and establishes the rank and other criteria used to select officers for the

various programs. For example, officers in the grades of Captain or 1st Lieutenant with not less than 2 years of service or not more than 7 years of service are encouraged, and expected, to attend Squadron Officer School (SOS) or complete it via correspondence courses. The purpose of SOS is:

> . . . to prepare selected Captains and Lieutenants to execute those command and staff tasks required of junior officers of the United States Air Force, to strengthen those professional values necessary for a full career of dedication and service to their country, and to provide those officers with a foundation for future professional development. (68:13)

The educational opportunities available to officers may be categorized into two types: professional education and professional military education. Professional education is designed to provide training necessary to ensure the effectiveness of officers in accomplishing their assigned duties; while professional military education is designed to develop and build the "whole man" concept of officers. That is, it develops a man who is well versed not only in his specialty, but also in the entire military system so that as he progresses up the hierarchy in rank he will have the background necessary to accept increased responsibility in several areas which may or may not be related to his primary duty specialty. (68:3)

The civil service personnel system also provides educational opportunities for its personnel. In fact, current Air Force policy is to provide the training necessary

to ensure the maximum efficiency of civil servants in the performance of their official duties. (55:1) Further,

> . . . many programs exist or may be established to aid supervisors in solving employee and employee-skill problems. These include: Orientation, Apprentice, Self-Development, On-the-Job, Cooperative Work Study at the graduate or undergraduate level, and other specific training programs for meeting specific skill shortages. (55:2)

The authors consider the last four words of the above quotation to be of prime importance in illustrating the basic differences in the two systems relative to eligibility for training. While both officers and civil servants are eligible for training throughout their careers, officers are eligible for a great deal of training which may or may not be related directly to their primary duty specialty. However, the civil servant (with few exceptions) is restricted in his eligibility for training programs in that they must be related to his primary duty or career field.

Eligibility for Duties Not Connected With The Primary Job Assignment

Inherent in the Department of the Air Force is the requirement that certain designated jobs or tasks be performed at all levels of the organizational structure regardless of the size of the organization. Examples of such tasks or jobs would be such things as security officer, safety officer, building or area fire marshals, etc. Many times, because of limited manning within Air Force organizations, these jobs and tasks must be performed as additional duties to a person's primary job assignment. Further,

certain tasks, usually associated with larger organizations, require accomplishment after normal duty hours or on holidays. Examples of such tasks would be duty officers and officer of the day.

While both officers and civil servants are eligible for such duties, consideration must be given to the fact that if the "additional" duty requires action or the presence of an individual at a specific location on the Air Force installation after normal duty hours, then the civil servant would be eligible for overtime compensation. Consideration of the overtime provisions of the civil service personnel system often dictates that additional duties which might involve work after normal duty hours be given to military personnel.

Further, in considering the topic of this section, the reader also should keep in mind that both officers and civil servants can be detailed to entirely different jobs or positions from their primary job for short periods of time. In these circumstances, because of the structure of position descriptions and "position entitlements," the regulations governing the temporary assignment of civil servants are much more restrictive than the regulations governing this for officers. For example, if the detail involves civil service employees,

> . . . a record of the detail must be placed in the employee's official personnel folder because the experience and training gained is important for additional placement benefits for promotion or assignment during reduction-in-force. (59:1)

Procedures for Resolving Grievances

> All members of the Air Force, military or civilian, have the right to present complaints or grievances to higher authority without retaliatory action being taken against them. (63:1)

The procedure for both military and civilian personnel is to submit the complaint through supervisory channels for resolution at the lowest practical echelon of command. (63:1) If not resolved at this level, the complaint or grievance is presented to the next higher commander or supervisor or to the Inspector General (IG) for resolution. Air Force Regulations 40-771 and 123-11 give detailed instructions for submission of complaints or grievances by Air Force personnel and no discussion of these details will be included in this thesis.

One major difference in the grievance procedures available to military and civil service personnel is that civil servants who are members of an authorized labor union may seek the assistance of the union in resolving grievances. No such union is available to military personnel. The unions have specialists skilled and knowledgeable in the procedures for resolving grievances, thus much guidance and assistance is available to the civil servant who is a member of the union. This assistance is not available to the Air Force officer.

Overtime

Air Force officers' duty hours are generally established by local base commanders to satisfy the particular

requirements of the positions occupied by the officers. Regardless of what is usually considered to be a normal 8-hour workday, the Air Force officer is theoretically on duty twenty-four hours a day. (39:35) However, if required to work more than a normal 8-hour workday or more than 40 hours per week, no monetary compensation is provided to the officer for this "overtime" work. Compensatory time off is given sometimes for "overtime" work, but is not a recognized procedure of the military personnel system.

The specific duty hours for civil service personnel, although established by the local base commander, are limited by executive order and with minor exceptions may not exceed eight hours per day or forty hours per week. (39:36) Any authorized work in excess of this is considered to be overtime work for civil service personnel. Further, any civil service employees paid under the General Schedule may be compensated by pay or compensatory time off for irregular or occasional overtime duty. (73:1)

The important and basic difference in the two systems is that the civil service personnel system provides for compensation of personnel for overtime work while the military personnel system provides for no such compensation.

Use of Base Facilities

The military personnel system provides, in addition to pay and other benefits, the service of base facilities such as the base exchange and commissary for use by military

personnel. For purposes of this thesis, the authors have defined base facilities as any separate unit of real property at which exchange selling and administrative or support functions such as retail sales, food services and concessions are performed. (62:A-1)

The use of base facilities is limited to active duty military, retired military and their dependents. Civilian employees do have some limited privileges at exchange facilities when, because of the convenience of the government, they reside within the limits of a base and are under competent orders. (62:3-3) However, with some minor exceptions such as BX cafeterias or snack bars, civil servants are not authorized to use exchange facilities at Air Force bases. These privileges are reserved solely for military personnel and their dependents.

Physical Fitness

Air Force personnel on active duty are required to take a physical fitness test once each calendar year. If a person fails to maintain a certain level of fitness then he or she is " . . . counseled by commanders and placed in a remedial conditioning program." (79:3) Additionally, Air Force personnel are expected to maintain their weights within maximum allowable standards at all times. If a person exceeds the maximum weight requirements, then he or she is entered into a mandatory weight reduction program. The person is weighed again in 60 days, and if not within the

maximum allowable weight standards, he or she can face administrative action such as (1) a comment on an effectiveness report; (2) administrative separation from the Air Force, or (3) denial of reenlistment. (79:4)

The civil service personnel system places no such requirements on its personnel. Each job has a certain requirement, as far as physical restrictions are concerned, associated with it. Once this initial requirement has been satisfied, there is no established program of physical fitness or weight control comparable to that of the military personnel system except for firemen and policemen where there is a weight control program.

Summary

In this chapter the various inherent areas of difference between the military and civil service personnel systems have been discussed. Some areas are radically different, while others appear to be very similar at first glance but also are different when analyzed in detail.

The authors, by necessity, have been very brief in the discussion of the various areas of difference. Entire manuals and regulations have been written to describe the detailed aspects of the areas discussed in this chapter. The authors have attempted to present a general overview of the selected areas and some specifics to highlight major differences between the two personnel systems.

One portion of the next chapter will attempt to

determine what effect, if any, the areas of difference discussed in this chapter have on the relationship of military and civil service personnel in the working environment.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA FOR HYPOTHESIS ONE THROUGH THREE

Overview

The purpose of this chapter is to test the three null hypotheses presented in Chapter I. Additionally, the results of these tests for each hypothesis will be analyzed and the authors' interpretation of these results presented. As previously discussed in Chapter II, the data necessary to test the three hypotheses were obtained from a questionnaire mailed to a random sample of officers in logistics related specialties assigned to the Air Force Logistics Command.

Since the population variance was unknown, the authors chose the Student's t-test as the appropriate statistical tool with which to test the first two hypotheses. (9:341) Appendix E displays the mathematical and computational procedures for the Student's t-test used in this thesis. Additionally, the authors wished to assume a risk of no more than 5 percent of erroneously rejecting a null hypothesis. Therefore, they decided to test the null hypothesis at the 5 percent level of significance. Symbolically, this may be expressed as $\alpha = .05$. This significance level along with the appropriate degree of

freedom was used to obtain theoretical t-critical values against which calculated t-statistics for these two hypotheses were compared.

The authors chose multiple linear regression and correlation analysis as the tools with which they would attempt to establish the relationship, if any, between the Air Force officer's perception of his relationship with civil servants in the working environment and his perception of the inherent differences in the military and civil service personnel systems. In this analysis, the officer's rating of his perception of civil servants was considered to be the dependent variable. The independent variables included the officer's rating of his perceptions of the differences in the two personnel systems; his rank; his Air Force Specialty Code (AFSC); his age, and his years of experience within AFLC. The pre-prepared BMD Biomedical Computer program BMD02R was used to perform the actual linear regression (5:237), and is thoroughly discussed in a later section of this chapter along with the concepts, assumptions and techniques used to test the third null hypothesis.

Hypothesis One

Stated in the null form this hypothesis is that:

> The Air Force officer perceives his relationship with civil servants within the working environment in a favorable light.

This null hypothesis is an a priori assertion, by the

authors, about the population mean for the question of how Air Force officers perceive their relationships with civil servants in the working environment. By the use of sample statistics, the authors wished to determine whether the population mean (μ) was significantly less than the assumed indifferent score of 4.0. Symbolically, this may be expressed as:

$$H_o: \mu \geq 4.0$$

Section IIA of the questionnaire provided the data necessary to test and analyze this hypothesis. However, before any analysis could be performed, the data had to be arranged in usable form so that a mean, variance and t-statistic could be computed. This task was accomplished via the computer program displayed in Appendix F. The mean, variance and calculated t-values for the data relative to this hypothesis are displayed in Table 7 for the total officer response as well as for each stratification within the sample. The decision rule for rejection of the first null hypothesis was: If the computed calculated t-values were less than a negative theoretical t-value for a one tail test with appropriate degrees of freedom (DF), then the null hypothesis would be rejected. Table 7 shows the appropriate theoretical t-values and their associated degrees of freedom for the total officer response and the responses for each stratification of the sample.

TABLE 7

Average Scores for Air Force Officer's Perception
Of His Relationship With Civil Servants
In the Working Environment

Response Group	Mean	Variance	t Statistic	DF	t-Critical*	
					$\alpha = .05$	$\alpha = .40$
Total Officer	5.538	0.746	30.367	291	-1.645	- .253
(Average Scores by Stratification)						
Lieutenant	5.187	0.668	9.417	41	-1.684	- .255
Captain	5.422	0.904	16.386	119	-1.658	- .254
Major	5.563	0.497	15.204	46	-1.684	- .255
Lt. Colonel	5.755	0.804	11.906	36	-1.697	- .256
Colonel	5.967	0.291	24.464	44	-1.684	- .255

*Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

Analysis and Interpretation of Data

Application of the decision rule, as previously described, revealed that the null hypothesis could not be rejected for the total officer response; nor could this hypothesis be rejected for any stratum of the sample. Significantly, even by changing $\alpha = .05$ to $\alpha = .40$ (increasing the risk of erroneously rejecting the null hypothesis) the null hypothesis still could not be rejected for the total officer response or for any stratum of the sample.

Table 8 shows the mean, variance and calculated t-value for the total officer response to each of the bipolar adjective pairs contained in Section IIA of the questionnaire. Using a one tail Student's t-test, as previously described, the authors tested the null hypothesis also shown in Table 8 to determine if the population mean (μ) for each bipolar adjective pair was significantly different than an assumed indifferent score of 4.0. This hypothesis was rejected for all bipolar adjective pairs allowing the authors to use the favorable bipolar adjectives to describe the perception of Air Force officers for their relationship with civil servants in the working environment. Although no discussion of statistical tests for each stratification of the sample is included, the responses and computed t-value for each stratum per bipolar adjective can be seen in Appendix G.

Interpretation of responses to the bipolar adjectives indicates that Air Force officers perceived their

TABLE 8

Total Officer Response Per Bipolar Adjective Pair
For Section IIA of the Lutz/Apple Questionnaire

Adjective Pair	Mean	Variance	t-Statistic
Good - Bad	6.213	0.989	37.963
Harmonious - Dissonant	5.900	1.131	30.477
Worthless - Valuable	5.777	1.236	27.259
Kind - Cruel	5.460	1.304	21.814
Unpleasant - Pleasant	5.893	1.337	27.936
Happy - Sad	5.457	1.428	20.797
Ferocious - Peaceful	5.464	1.215	22.655
Tense - Relaxed	5.333	2.113	15.649
Nice - Awful	5.529	1.188	23.934
Honest - Dishonest	5.715	1.880	21.332
Unfair - Fair	5.866	1.661	24.696
Willing - Unwilling	5.351	2.208	15.505
Healthy - Sick	5.619	1.678	21.314
Loud - Soft	4.509	1.678	6.697
Agitated - Calm	4.979	2.200	11.265

The null hypothesis for all bipolar adjective pairs shown above was:

$$H_0: \mu \leq 4.0$$

Significance Level	t-Critical*
.05	1.645
.01	2.326
.005	2.576

*Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

relationships with civil servants in a favorable light. Although not statistically tested, the perception of the officer's relationships with civil servants in the working environment seemed to become more favorable as the officer's rank increased. This trend was indicated by the increase in mean scores for the stratum as shown in Table 7. Based on the results of the statistical tests shown in Table 8, it can be said that Air Force officers perceive their relationship with civil servants in the working environment as being good, harmonious, honest, valuable, relaxed and willing. In fact, each of the favorable bipolar adjectives could be used, based on the results of the statistical tests, as a descriptor of how Air Force officers perceive their relationships with civil servants.

Hypothesis Two

Stated in the null form, this hypothesis is that:

> The Air Force officer's perception of each of the inherent differences between the military and civil service personnel systems is indifferent.

The data necessary to test and analyze this hypothesis were gathered via Section IIB of the mailed questionnaire. Before performing any analysis, a mean, variance and t-statistic had to be computed and the results arranged in usable format. Appendix H includes a listing of the computer program used to accomplish this task.

Before testing the hypothesis for each difference, the authors reviewed the data comparing the mean score for

each difference with an assumed indifferent score of 4.0. From this comparison, three cases evolved:

Case 1: If the observed mean was greater than 4.0, a one tailed Student's t-test was used to test the following null hypothesis:

> The Air Force officer's perception of the stated difference between the military and civil service personnel systems is either indifferent or unfavorable.

Symbolically, this may be expressed as:

$$H_0: \mu \leq 4.0$$

Case 2: If the observed mean was less than 4.0, a one-tailed Student's t-test was used to test the following null hypothesis:

> The Air Force officer's perception of the stated difference between the military and civil service personnel systems is either indifferent or favorable.

Symbolically, this may be expressed as:

$$H_0: \mu \geq 4.0$$

Case 3: If the observed mean was exactly 4.0, no statistical test was accomplished. Since there was a computed t-value of 0, the Air Force officer's perception of the stated difference was considered to be indifferent.

As stated earlier, all tests were made at the $\alpha = .05$ level of significance. The decision rule employed in this analysis was simple and straightforward. That is, if the calculated t-value equaled or exceeded the theoretical t-value, the null hypothesis was rejected. Rejection of the null hypothesis infers that the authors were

not willing to attribute the difference between the observed mean and the assumed indifferent score of 4.0 to chance. Any failure to reject the null hypothesis was viewed as acceptance of this hypothesis by the authors. Further, any acceptance of the null hypothesis inferred indifference on the part of the population.

Analysis and Interpretation of Data

Since a total of fourteen differences were identified for testing, indicating the need for fourteen separate tests of the null hypothesis, the authors felt it would be extremely repetitious to restate and test each hypothesis within this chapter. Instead, Appendix I, containing Tables a through n, is included to eliminate this repetition. Each table contains the computations necessary to test the appropriate hypothesis for each inherent difference. In addition, each table is annotated as to whether the hypothesis was accepted or rejected for the total officer response group and each of the various rank stratifications. For the reader's convenience, a summary table (Table 9) indicating the results of each hypothesis test, based on the data collected from the random sample, is presented in the text of this chapter.

For the total officer response group, the null hypothesis tested was rejected for eleven of the fourteen differences in the personnel systems. From the information presented in Table 9, it is readily apparent that, in

TABLE 9

Summary of Results for Hypothesis Two

Response Group	Inherent Differences														
	Pay	Leave Policies	Medical Benefits	Retirement Plan	Promotions	Transfer Policies	Dress and Personal Appearance	Periodic Performance Evaluations	Eligibility for Training	Eligibility for Duties Not Connected With Your Primary Job Assignment	Procedure for Resolving Grievances	Overtime	Use of Base Facilities	Physical Fitness
Total Officer	F	I	F	F	F	U	F	F	F	I	I	U	F	F
Lieutenant	I	I	F	F	F	I	I	F	F	I	I	U	F	F
Captain	F	F	F	F	F	I	F	F	F	I	I	U	F	F
Major	F	I	F	F	F	U	F	F	F	I	I	U	F	F
Lt. Colonel	F	U	F	F	F	U	F	I	F	I	I	U	F	F
Colonel	F	I	F	F	F	I	F	F	F	I	I	U	F	F

F = Favorable U = Unfavorable I = Indifferent

general, Air Force officers favorably perceive pay, medical benefits, retirement plan, dress and personal appearance, periodic performance evaluations, eligibility for training, use of base facilities and physical fitness. They are indifferent to leave policies, eligibility for duties not connected with their primary job assignment and procedures for resolving grievances. Finally, their perception of transfer policies and overtime is unfavorable.

The authors found two aspects of the data displayed in Table 9 to be especially interesting and worthy of mention. First, there was total agreement through all stratifications of the sample on nine of the fourteen differences in the two personnel systems. This agreement among the stratification was especially surprising to the authors considering the large size of the sample and the varying backgrounds and ages of the individuals in the sample. Second, in only one of the five remaining differences (leave policies) where there was not complete agreement among all stratifications did the perceptions of the officers range from significantly favorable, to indifferent, to significantly unfavorable. Further analysis of the differences in perception by rank stratification, although presented in Table 9 for information, is left for the reader's interpretation.

Hypothesis Three

Stated in the null form, the third hypothesis is that:

> The Air Force officer's perception of his relationship with civil servants is not related to his perception of the inherent differences in the two personnel systems.

Extensive literature review and personal interviews led the authors to the a priori assumption that this relationship was actually of the dependent/independent form, with the Air Force officer's perception of his relationship with civil servants being dependent upon his perception of the differences in the two personnel systems. This a priori assumption of dependency greatly influenced the authors' selection of multiple regression and correlation analysis as the appropriate analytic tool.

Multiple regression analysis is nothing more than a logical extension of the single independent variable regression analysis. Instead of merely one independent variable, multiple regression involves the use of two or more independent variables to estimate the value of the stated dependent variable. There are three general purposes for multiple regression and correlation analysis:

> 1. To derive an equation which provides estimates of the dependent variable from values of the independent variables.
>
> 2. To obt in a measure of the error involved in using this equation as a basis for estimation.
>
> 3. To obtain a measure of the proportion of variance in the dependent variable accounted for or "explained by" the independent variables. (9:507)

To accomplish these purposes, the authors employed a pre-prepared BMD Biomedical computer program entitled BMD02R. Specifically, this program performs a stepwise multiple linear regression. Briefly, "stepwise" analysis is:

> . . . a search technique whereby the most highly correlated independent variable, i.e., most highly correlated with the dependent variable, is regressed with the dependent variable. Next, a three-way variable regression equation is calculated, where another of the independent variables is included: the one which, in tandem with the first, reduces the error variance by the largest margin of any of the remaining sets of independent variables. This procedure continues until at the final step the full regression equation is estimated and all independent variables which will further explain the variance are included. (35:23)

It should be noted that the authors did not propose that the Air Force officer's perceptions of the differences in the two personnel systems are the sole determinates of the perception that he forms of his relationship with civil servants. In an effort to derive a realistic regression, the authors selected as additional independent variables certain aspects which they believed might have a significant impact on perception. These aspects included: age, rank, Air Force Specialty Codes, and years of experience within the Air Force Logistics Command. A listing of the specific variables used is included in Appendix J, Table a.

Although the BMD02R program is pre-prepared, certain input cards are necessary to adapt the program to any given situation. The input cards necessary for this study are shown in Appendix J, Table b. Specific instructions for

the preparation of these cards were obtained from the BMD Biomedical Computer Programs source book. (5:235-238)

The BMD02R program computes values for the regression coefficients of a linear equation in the form of:

$$Y = b_o + b_1X_1 + b_2X_2 \ldots + b_nX_n$$

where Y is the dependent variable; X_1, X_2, . . . X_n are independent variables; b_1, b_2, . . . b_n are the regression coefficients and b_o is a constant. Each computed b value represents the marginal increase in the dependent variable attributed to a unitary increase in the independent variable with which the specified b is associated. In addition, a standard error of the estimate, which represents a measure of the scatter or dispersion around the regression plane, is computed for each variable included in the regression. (9:515) For each regression equation a coefficient of multiple determination, symbolically represented by R^2, is also calculated. This coefficient (R^2) is a measure of the proportion of variance in the dependent variable which is explained by the regression equation relating Y to X_i, i = 1, n. (9:517) The computed values for b_i, the standard errors of the estimate, and the final R^2 for this regression are included in Appendix J, Table c. When combined, these values provide the basis for testing the third hypothesis.

Analysis and Interpretation of Data

Prior to hypotheses testing, the authors were obliged to make the following assumptions which are standard

to linear multiple regression analysis:

1. A linear model is appropriate.

2. All error terms have a constant and equal variance.

3. The error terms are independent. (46:2)

The authors employed two methods for analyzing this third hypothesis. First, they performed a test on the overall regression to determine if a significant correlation existed between the dependent variable and the independent variables taken collectively. Secondly, they tested each relevant independent variable separately to determine if a useful linear relationship existed between it and the dependent variable.

A test of the overall regression involved examining the sample coefficient of multiple determination (R^2) as an estimate of the population coefficient of multiple determination (RHO^2). The object of this examination was to conclude whether RHO^2 was significantly different than zero. Symbolically, the null hypothesis for this test was:

$$H_o: RHO^2 = 0$$

Appendix K contains an explanation of the equation necessary to convert the sample R^2 value to an F-statistic for hypothesis testing. The results of the actual test of the null hypothesis is also included in Appendix K. Based on this test, the authors rejected the null hypothesis that RHO^2 was equal to zero. Although statistically a relationship does exist between the independent variables included

in the regression and the dependent variable, the authors seriously question its usefulness. By explaining only 19% (R^2 = .19) of the total variation in the dependent variable, the regression equation is a drastically inefficient model for predicting the Air Force officer's perception of his relationship with civil servants in the working environment. Therefore, the regression equation would be of little value to the Air Force manager.

Since the regression equation included a total of 31 variables, many of which were not relevant to the study at hand, the authors chose to test each variable associated with a delineated difference in the personnel systems separately to determine if there was any useful relationship between it and the dependent variable. This test involved examining the sample coefficient (b_i) as an estimate of the population coefficient (B_i). The purpose of this examination was to determine if B_i was significantly different than zero. Symbolically, the null hypothesis tested was:

$$H_o: B_i = 0$$

where B_i is the coefficient of the particular variable being tested. To test this hypothesis, a t-statistic was computed by dividing the particular coefficient (b_i) by its standard error. This quotient was then compared to a selected theoretical t-value. If the computed t-value was greater than the theoretical t-value, the null hypothesis was rejected and it was assumed that a useful relationship existed between the particular independent variable and

the dependent variable. Table 10 summarizes the results of this test on each of the relevant independent variables (X_i).

As indicated in Table 10, only variable number 30, associated with Grievance Procedures, is significantly related to the dependent variable. The authors, however, did not feel that this one meager relationship was enough to elicit any further analysis of the data.

In conclusion, the statistics derived from this sample would not allow rejection of the third and final null hypothesis. In other words, no significant relationship appears to exist between the Air Force officer's perception of his relationship with civil servants and his perception of the differences in the two personnel systems. It appeared that each of these perceptions was a random variable formed separately within each individual surveyed.

TABLE 10

Summarization of the Hypothesis Test to Determine Whether X_i Is Significantly Related to the Dependent Variable

Variable Number	Associated With	t Statistic	t Critical** ($\alpha = .05$)
20	Pay	.929	1.960
21	Leave	- .846	-1.960
22	Medical Benefits	.252	1.960
23	Retirement	1.062	1.960
24	Promotion	.565	1.960
25	Transfers	.403	1.960
26	Personal Appearance	1.053	1.960
27	Performance Evaluations	- .312	-1.960
28	Training	.805	1.960
29	Additional Duties	- .962	-1.960
30	Grievances	2.061	1.960*
32	Base Facilities	.993	1.960
33	Physical Fitness	.131	1.960

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for each variable was:

$$H_o: B_i = 0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The overall objective of this thesis was to furnish the Air Force manager, whether military or civil servant, with information that would be useful in avoiding or solving management problems concerning military-civil servant relationships. More specifically, this study was designed:

1. To delineate the inherent differences between the military and civil service personnel systems.

2. To determine the Air Force officer's perception of his relationship with civil servants within the working environment.

3. To determine how the Air Force officer perceives specific areas of the military personnel system as compared to those of the civil service personnel system.

4. To determine if the Air Force officer's perception of his relationship with civil servants is related to his perception of specific areas of the military personnel system when compared to those of the civil service personnel system.

The authors accomplished these specific objectives by answering one research question and statistically testing three hypotheses.

Chapter III of this thesis provides the results of the authors' investigation into the military and civil

service personnel systems. The authors feel that the discussion contained in Chapter III provides an adequate basis for understanding what they have identified as the inherent differences in the two personnel systems. These differences often dictate that Air Force managers, whether military or civil service, must use different techniques in the management of military and civil service personnel. However, the primary purpose for answering this research question was to obtain a listing of the inherent differences between the two personnel systems for inclusion in Section IIB of the questionnaire used in this thesis.

The three hypotheses posed by the authors in this research effort and their associated statistical tests are discussed in Chapter IV. Based on the data obtained from the mailed questionnaire, these statistical tests yielded the following results: (1) The first null hypothesis could not be rejected at the $\alpha = .05$ or $\alpha = .40$ significance levels for the total officer response group or for any stratification of the sample. This indicated that Air Force officers in the population generally perceive their relationships with civil servants in the working environment in a favorable light. (2) The second null hypothesis was rejected at the $\alpha = .05$ significance level for eleven of the fourteen inherent differences in the military and civil service personnel systems for the total officer response group. That is, the Air Force officers consider

as significantly favorable nine of the inherent differences between the two personnel systems; and they consider two of the differences to be significantly unfavorable.

(3) The third null hypothesis could not be rejected on the basis of the analysis conducted by the authors. Although there was a statistically significant relationship between the independent variables taken collectively and the dependent variable, the authors found this relationship to be very questionable since only 19% of the total variation in the dependent variable was explained by the regression equation. Therefore, the authors tested each variable (of the regression equation) associated with the inherent differences in the two personnel systems to determine if they were significantly related to the dependent variable. These statistical tests revealed that only one variable associated with Grievance Procedures was indeed significantly related to the dependent variable, i.e., the relationship of military and civil servants in the working environment. Since only one of the fourteen delineated differences showed any signs of being related to the dependent variable, the authors concluded that in fact there was no significant relationship between the Air Force officer's perception of his relationship with civil servants and his perception of the inherent differences in the two personnel systems.

Conclusions

The primary problem addressed by the authors was the lack of systematic research to determine how professional military and civil service personnel perceive their interrelationships within the working environment, and what factors are related generally to their perceptions. Specifically, the authors hoped to determine if the inherent differences in the military and civil service personnel systems as perceived by Air Force officers caused conflict between these officers and civil servants which would manifest itself in the relationship of the two groups.

The authors believe that they have made, through this research effort, a small yet vital initial step toward solving the primary problem outlined above.

Although limited to the study of Air Force officers as discussed in Chapter II, this research effort has not found any indication of conflict between these Air Force officers and civil servants in the working environment. After reviewing the results of the hypotheses testing, the authors found that Air Force officers in the population generally perceived their relationship with civil servants in a favorable light. It also was readily apparent that the population, based upon the sample response to the questionnaire, generally perceived the inherent differences between the military and civil service personnel systems in a favorable light, i.e., Air Force officers prefer the military system to the civil service system. Additionally,

this study revealed that the perceptions of Air Force officers for these inherent differences in the two personnel systems were not significantly related to their perceptions of civil servants in the working environment. In short, the authors could find no indication of conflict, as manifested by unfavorable relationships, between Air Force officers in the population and civil service employees.

The conclusions reached by the authors have been based on the results of statistical testing of the data which were collected in their sample survey. Somewhat puzzled by these sample statistics, which indicated a perception of military-civil servant relationships so drastically different than background information suggested, the authors conducted a review of available information to determine if any environmental factors had been present during the past few months which might have influenced the way the officers surveyed ranked the concepts on the questionnaire. During this review, the authors discovered two environmental factors which addressed the subject of the relationship of military and civil service personnel. The first factor was an article titled "Everybody Wears Blue To New Base Commander," which summarized the views of Colonel Irby B. Jarvis, who had recently assumed the position of Base Commander of Wright-Patterson AFB, Ohio. In the article, Col. Jarvis (referring to the military-civil service "team") states,

> 'We're all in this ball game together, working for the United States, the Defense Department and the U.S. Air Force . . . .' 'I call everybody a blue suiter,' he says, using the term usually applied to wearers of the Air Force uniform. 'I'm a believer in people and there's only one color at Wright-Patterson - that's Air Force blue.' (28:15D)

The second factor was a talk given by Gen. Jack J. Catton, Commander of the Air Force Logistics Command, to 500 civilian and military supervisors at AFLC headquarters. Referring to the teamwork required of AFLC personnel, Gen. Catton remarked, " . . . I didn't say you officers, or you sergeants or you civil service personnel. I didn't break it out because it can't be broken out . . ." (29:4) Of course, the authors had no means of determining what effect, if any, this article and speech had on the way the respondents rated their perceptions of their relationship with civil servants in the working environment. However, factors such as these over a period of time might very well have created an atmosphere which could have influenced some respondents and thus were worthy of mention.

In addition to considering the environmental factors, the authors looked at their questionnaire in an even more critical light in an attempt to isolate possible design factors that may have attributed to the sample results. These design considerations are presented for the reader's information and to assist future research efforts in the problem area addressed by this thesis.

Possible Research Design Difficulties

Perception, like many other allusive processes of the human mind, is an extremely difficult concept to describe, let alone measure with any degree of accuracy. Although the authors conducted extensive research into the area of perception and perception measurement prior to the selection of a measurement device (the semantic differential technique) it is possible that they may have chosen and/or designed a tool which was invalid for the study at hand. Time constraints did not permit validation of this tool; however, future studies may confirm or deny the validity of the devices and procedures used.

Additionally, the authors' critique of the research design used in this thesis produced the following results:

1. The assumption of equal intervals associated with the ratings of each set of bipolar adjectives may not have held. Time constraints did not permit a retest to validate these intervals.

2. The selection of bipolar adjectives for their applicability to the evaluative factor (although they had all been empirically tested for other studies) may not have been entirely applicable to this study. Again, time constraints did not permit retests for validation.

3. The limited number of bipolar adjectives included for each concept in Section IIB of the questionnaire may have not resulted in a meaningful measurement of perception.

4. The concept to be rated may have been worded in such a way as to influence responses. For example, the word "your" in the concept "How would you rate your relationships with civil servants within the working environment" may have affected results. It is possible that respondents rated "their" personal relationship with civil servants higher than they would have rated military-civil servant relationships in general, since it is only natural to perceive in a manner supportive to one's own cause or position. (11:218)

5. The concepts to be rated in Section IIB may have been too vague in some cases. Consequently, respondents may not have all rated the same concept per se.

6. Although the authors designed the questionnaire so that respondents would remain completely anonymous, it is possible that some officers may not have considered this to be the case, and as a result did not rate the concepts on the questionnaire in accordance with their "true" perceptions.

7. One or more of the assumptions made in Chapter IV relative to the use of multiple regression and correlation analysis may not have been valid. Again, however very real time constraints prohibited any validation of these assumptions by the authors.

Recommendations

Based upon the results of this thesis the authors make the following recommendations for continued research to follow this initial effort in the area of military-civil servant relationships:

1. A study should be made of civil servants' perceptions of their relationships with Air Force officers in the working environment and their perceptions of the inherent differences in the two personnel systems when comparing the civil service personnel system to the military personnel system.

2. The findings of this research effort should be reviewed relative to the possible design difficulties associated with this effort. Appendix L lists the data base used in this thesis.

3. Other populations should be selected for study so that if conflict exists in the relationship of military and civil service employees in the Department of Defense this conflict can be identified and reduced to an acceptable level.

APPENDIX A

EXPLANATION OF HYPOTHESIS TESTING

HYPOTHESIS TESTING PROCEDURES

A statistical hypothesis may be considered as a statement about a population. The hypothesis is based on either assumptions or evidence about this population. Using data obtained from a sample and employing a stated decision rule, an appropriate statistical test is employed to determine whether the hypothesis should be "accepted" or "rejected." The object of this procedure is:

> . . . to make a decision about the population based on the information obtained from the sample. If the sample data, in fact, do act to discredit the hypothesis, the hypothesis is "rejected," and we behave as if it is false. On the other hand, if the sample data do not discredit the hypothesis, the hypothesis is "accepted," and we behave as if it is true. (18:166)

The statistical hypothesis which is tested to determine whether it should be "accepted" or "rejected" is called the null hypothesis. Under hypothesis testing procedures, an alternate hypothesis also is established to state the opposite assumption about the population from that stated in the null hypothesis. (9:306) This alternate hypothesis, often referred to as the "research" hypothesis, is the researcher's actual a priori assumption about the population parameter in question. Therefore, rejection of the null hypothesis substantiates the researcher's initial assumption or belief.

Throughout this thesis reference is made only to

the null hypothesis, inferring that the authors' a priori assumption about the population is considered as the unstated alternate hypothesis.

APPENDIX B

COVER LETTER AND QUESTIONNAIRE

DEPARTMENT OF THE AIR FORCE

AIR FORCE INSTITUTE OF TECHNOLOGY (AU)

WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

REPLY TO ATTN OF: SLGR (SLSR-14-73A/Capt Apple/Capt Lutz)
AUTOVON 787-7769

4 December 1972

SUBJECT: Officer Opinion Survey

TO:

1. The attached questionnaire was prepared by a research team at the Air Force Institute of Technology, Wright-Patterson AFB, Ohio. The purpose of this questionnaire is to obtain your perception of Military/Civil Servant relationships within the working environment and to determine your attitude toward selected differences in the Military and Civil Service personnel systems.

2. You are requested to provide an answer or comment for each question. Headquarters USAF Survey Control Number 73-54 has been assigned to this questionnaire.

3. Your responses to the following questions will be held confidential. Please remove the cover sheet before returning the completed questionnaire. Your cooperation in providing this data will be appreciated and will be very beneficial in providing Air Force Managers with information concerning this important aspect of our working environment. Please return the completed questionnaire to Captain Robert C. Apple within two weeks after receipt.

FOR THE COMMANDANT

FRANCIS E. JAMES, JR., Colonel, USAF
Chief, Graduate Education Division
School of Systems and Logistics

2 Atch
1. Questionnaire
2. Return Envelope

OFFICER OPINION SURVEY

SECTION I

Biographical Information

Please write or check the appropriate response in the space provided.

1. Present Grade:
   ( ) Lieutenant
   ( ) Captain
   ( ) Major
   ( ) Lt. Colonel
   ( ) Colonel

2. Current Duty AFSC: _____

3. Age:
   ( ) 25 or under
   ( ) 26 - 30
   ( ) 31 - 35
   ( ) 36 or over

4. Years' experience within AFLC: (Include present and former assignments)
   ( ) Less than 1 year
   ( ) 1 to 3 years
   ( ) 4 to 8 years
   ( ) More than 8 years

SECTION II

Officer Opinion

The remaining pages of this questionnaire contain separate concepts about which you are asked to make judgment ratings.

Before rating any of the areas, read the concept printed at the top of the page carefully to insure that it is firmly fixed in your mind. Once it is firmly established, begin the rating process and evaluate each set of adjectives as follows:

1. If you feel that the concept is very closely related to the adjective at either end of the scale, place an X in the appropriate space as illustrated in line 1 of the sample below.

2. If you feel that the concept is moderately related, place an X in the second space from either end of the scale as illustrated in line 2 of the sample below.

3. If you feel that the concept is only slightly related, place an X in the third space from either end of the scale as illustrated in line 3 of the sample below.

4. If you feel neutral or if you have no knowledge of the concept, place an X in the middle space of the scale as illustrated in line 4 of the sample below.

(SAMPLE)

Your Wing Commander
(Concept to be rated)

1. Good _X_ : ___ : ___ : ___ : ___ : ___ : ___ Bad
2. Weak ___ : ___ : ___ : ___ : ___ : _X_ : ___ Strong
3. Fast ___ : ___ : _X_ : ___ : ___ : ___ : ___ Slow
4. Dark ___ : ___ : ___ : _X_ : ___ : ___ : ___ Bright

IT IS IMPORTANT THAT THESE INSTRUCTIONS BE FOLLOWED AND THE JUDGMENTS BE MADE AS ACCURATELY AS POSSIBLE.

1. MAKE ONLY ONE RATING ON EACH SCALE.
2. MAKE EACH JUDGMENT SEPARATELY. DO NOT CHECK BACK TO SEE HOW YOU MARKED A SIMILAR ITEM.

A. How would you rank your relationships with civil servants within the working environment?

Good	___: ___: ___: ___: ___: ___: ___	Bad
Harmonious	___: ___: ___: ___: ___: ___: ___	Dissonant
Worthless	___: ___: ___: ___: ___: ___: ___	Valuable
Kind	___: ___: ___: ___: ___: ___: ___	Cruel
Unpleasant	___: ___: ___: ___: ___: ___: ___	Pleasant
Happy	___: ___: ___: ___: ___: ___: ___	Sad
Ferocious	___: ___: ___: ___: ___: ___: ___	Peaceful
Tense	___: ___: ___: ___: ___: ___: ___	Relaxed
Nice	___: ___: ___: ___: ___: ___: ___	Awful
Honest	___: ___: ___: ___: ___: ___: ___	Dishonest
Unfair	___: ___: ___: ___: ___: ___: ___	Fair
Willing	___: ___: ___: ___: ___: ___: ___	Unwilling
Healthy	___: ___: ___: ___: ___: ___: ___	Sick
Loud	___: ___: ___: ___: ___: ___: ___	Soft
Agitated	___: ___: ___: ___: ___: ___: ___	Calm

B. How would you rank each of the following areas of <u>the military personnel system as compared to the same areas provided by the civil service personnel system</u>?

Pay

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Leave Policies

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Medical Benefits

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Retirement Plan

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Promotions

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Transfer Policies
(Frequency of PCS Moves)

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Dress and Personal Appearance

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Periodic Performance Evaluations

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Eligibility for Training

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Eligibility for Duties Not Connected With Your Primary Job Assignment

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Procedures for Resolving Grievances

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Overtime

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Use of Base Facilities

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

Phyaical Fitness

Favorable ___: ___: ___: ___: ___: ___: ___ Unfavorable

APPENDIX C

DEMONSTRATION OF NORMALITY

DEMONSTRATION OF NORMALITY

Since the sample size employed in this survey was relatively large (291 to be exact), many schools of thought would allow invocation of the Central Limit Theorem. This theorem states that no matter what the population distribution really is, the underlying sampling distribution approaches normality as the sample size becomes increasingly larger. (9:288) Once invoked, this assumption would allow the authors to treat the collected data as if it were normally distributed and to proceed with analyses that require normality.

In an effort to substantiate the idea of normality and add power to the analyses, the authors wished to determine whether the sample data were in fact normally distributed. Basic to this determination was a pre-prepared computer program entitled SIMFIT which was developed by Lt. Colonel Carl L. Gordon. This program employs a curve fitting technique to provide the user with an indication of the underlying distribution associated with input data. (32:2)

The specific tool used in SIMFIT is the Kolmogorov-Smirnov One-sample test which is based on a "goodness of fit." That is, input data are compared to some specified theoretical distribution, in this case the normal distribution. The results of this comparison are used to test the hypothesis that the data follows a normal distribution. Any failure to

reject this hypothesis is viewed as acceptance and the input data are considered to have passed the test of normality.

Application of the SIMFIT program revealed the following:

INPUT VARIABLES THAT PASSED THE TEST OF NORMALITY

Relationship of Military and Civil Service Personnel
Pay
Leave Policies
Retirement Plan
Promotions
Dress and Personal Appearance
Periodic Performance Evaluations
Eligibility for Training
Eligibility for Duties Not Connected With Your Primary Job Assignment
Procedures for Resolving Grievances
Use of Base Facilities
Physical Fitness

INPUT VARIABLES THAT DID NOT PASS THE TEST OF NORMALITY

Medical Benefits
Transfer Policies
Overtime

Since twelve of the fifteen variables tested were demonstrably normal, the authors chose to employ the Student's t-test in all cases rather than confuse the reader with different forms of analysis (i.e., the Student's t-test for those variables which were demonstrably normal and some non-parametric test for the three variables which were not normally distributed). The authors assumed that this decision would not appreciably affect the overall outcome of this research effort.

APPENDIX D

QUESTIONNAIRE OVERLAY

OFFICER OPINION SURVEY

SECTION I

Biographical Information

Please write or check the appropriate response in the space provided.

1. Present Grade:
   - (1) Lieutenant
   - (2) Captain
   - (3) Major
   - (4) Lt. Colonel
   - (5) Colonel

2. Current Duty AFSC: *See Below

3. Age:
   - (1) 25 or under
   - (2) 26 - 30
   - (3) 31 - 35
   - (4) 36 or over

4. Years' experience within AFLC: (Include present and former assignments)
   - (1) Less than 1 year
   - (2) 1 to 3 years
   - (3) 4 to 8 years
   - (4) More than 8 years

* 1 - 31XX
2 - 401X/402X/403X/404X/409X
3 - 46XX
4 - 60XX
5 - 62XX
6 - 63XX
7 - 64XX
8 - 65XX
9 - 66XX
10 - 004X

A. How would you rank your relationships with civil servants within the working environment?

Good	7	6	5	4	3	2	1	Bad
Harmonious	7	6	5	4	3	2	1	Dissonant
Worthless	1	2	3	4	5	6	7	Valuable
Kind	7	6	5	4	3	2	1	Cruel
Unpleasant	1	2	3	4	5	6	7	Pleasant
Happy	7	6	5	4	3	2	1	Sad
Ferocious	1	2	3	4	5	6	7	Peaceful
Tense	1	2	3	4	5	6	7	Relaxed
Nice	7	6	5	4	3	2	1	Awful
Honest	7	6	5	4	3	2	1	Dishonest
Unfair	1	2	3	4	5	6	7	Fair
Willing	7	6	5	4	3	2	1	Unwilling
Healthy	7	6	5	4	3	2	1	Sick
Loud	1	2	3	4	5	6	7	Soft
Agitated	1	2	3	4	5	6	7	Calm

B. How would you rank each of the following areas of the military personnel system as compared to the same areas provided by the civil service personnel system?

Pay

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Leave Policies

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Medical Benefits

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Retirement Plan

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Promotions

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Transfer Policies
(Frequency of PSC Moves)

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Dress and Personal Appearance

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Periodic Performance Evaluations

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Eligibility for Training

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Eligibility for Duties Not Connected With Your Primary Job Assignment

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Procedures for Resolving Grievances

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Overtime

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Use of Base Facilities

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

Physical Fitness

Favorable 7 : 6 : 5 : 4 : 3 : 2 : 1 Unfavorable

APPENDIX E

STUDENT'S t-TEST

Student's t-Test

Symbology

n - the total number of observations in the sample

x_i - the score for each individual respondent. $(i=1,n)$

1) For Hypothesis One, x_i is the mean score of the semantic differential for each respondent.

2) For Hypothesis Three, x_i is each respondent's rating of the specific difference in question.

Computational Procedures

Mean

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

Variance

$$s^2 = \frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1}$$

Computed t-value (t)

$$t_{n-1} = \frac{\bar{x} - 4.0}{\sqrt{s^2} / \sqrt{n}}$$

Use of the Computed t-value

> The size of T (computed t-value), or the significance ratio necessary to determine whether or not an obtained difference in means is larger than could be expected by chance in terms of the number of cases in the sample, is obtained from a table of (theoretical) t values for various degrees of freedom. Degrees of freedom are determined by the size of the sample involved and indicate the value of t that should be used in determining the significance of differences in means. (19:299)

In this thesis, the term t-statistic will be used

synonymously with the term computed t-value to indicate the significance ratio calculated by the formula shown above. Also, the term "t-critical" will be used synonymously with the term "theoretical t-value" to indicate the significance ratio obtained from a table of values as outlined above.

APPENDIX F

COMPUTER PROGRAM TO CALCULATE MEAN, VARIANCE AND t-STATISTIC FOR HYPOTHESIS ONE

```
C       MILITARY AND CIVIL SERVANT RELATIONSHIP RESPONSE
C       ****MAIN PROGRAM*****
        COMMON OBS,M,N
        DIMENSION OBS(300,19)
        M=1
        N=291
        DO 1 I=1,N
        READ 100,(OBS(I,II),II=1,19)
      1 CONTINUE
        PRINT 200
        CALL RELAT
        CALL ADJECT
        M=1
        N=42
        PRINT 201
        CALL RELAT
        CALL ADJECT
        M=43
        N=162
        PRINT 202
        CALL RELAT
        CALL ADJECT
        M=163
        N=209
        PRINT 203
        CALL RELAT
        CALL ADJECT
        M=210
        N=246
        PRINT 204
        CALL RELAT
        CALL ADJECT
        M=247
        N=291
        PRINT 205
        CALL RELAT
        CALL ADJECT
  100   FORMAT(F1.0,F2.0,17F1.0)
  200   FORMAT(1H1,51X,26H***TOTAL OFFICER RESPONSE***)
  201   FORMAT(1H1,49X,31H***TOTAL LIEUTENANT RESPONSE***)
  202   FORMAT(1H1,51X,26H***TOTAL CAPTAIN RESPONSE***)
  203   FORMAT(1H1,52X,26H***TOTAL MAJOR RESPONSE***)
  204   FORMAT(1H1,51X,27H***TOTAL LT COL RESPONSE***)
  205   FORMAT(1H1,51X,26H***TOTAL COLONEL RESPONSE***)
        STOP
        END
```

```
C       ****CALCULATION OF THE MEAN,VARIANCE,AND T-STATISTIC****
        SUBROUTINE RELAT
        COMMON OBS,M,N
        DIMENSION OBS(300,19), OBMEAN(300)
C       ***THE MEAN CALCULATION***
        RELSUM=0.
        DO 1 I=M,N
        OBSUM=0.
        DO 2 II=5,19
        OBSUM=OBSUM+OBS(I,II)
        OBMEAN(I)=OBSUM/15.
    2   CONTINUE
    1   CONTINUE
        DO 3 K=M,N
        RELSUM=RELSUM+OBMEAN(K)
    3   CONTINUE
        NSTRAT=N-M+1
        REMEAN=RELSUM/NSTRAT
        PRINT 301,REMEAN
C       ***THE VARIANCE CALCULATION***
        VARSUM=0.
        DO 4 L=M,N
        VARSUM=VARSUM+((OBMEAN(L)-REMEAN)**2)
    4   CONTINUE
        VAR=VARSUM/(NSTRAT-1)
        PRINT 302,VAR
C       ***THE T-STATISTIC CALCULATION***
        TSTAT=(REMEAN-4.0)/(SQRT(VAR/NSTRAT))
        PRINT 303,TSTAT
  301   FORMAT(1H0,59X,5HMEAN=,F6.3)
  302   FORMAT(1H ,59X,5HVAR= ,F6.3)
  303   FORMAT(1H ,59X,7HT-STAT=,F7.4////)
        RETURN
        END
```

```
C       ****BIPOLAR ADJECTIVE RESPONSES--MEAN, VARIANCE,
                                                T-STATISTIC--****
        SUBROUTINE ADJECT
        COMMON OBS,M,N
        DIMENSION OBS(300,19)
        PRINT 401
        PRINT 402
        NSTRAT=N-M+1
        DO 1 I=5,19
C       ***THE MEAN CAICULATION***
        ADSUM=0.
        DO 2 II=M,N
        ADSUM=ADSUM+OBS(II,I)
    2   CONTINUE
        ADMEAN=ADSUM/NSTRAT
C       ***THE VARIANCE CALCULATION***
        VARSUM=0.
        DO 3 K=M,N
        VARSUM=VARSUM+((OBS(K,I)-ADMEAN)**2)
    3   CONTINUE
        VAR=VARSUM/(NSTRAT-1)
C       ***THE T-STATISTIC CALCULATION***
        TSTAT=(ADMEAN-4.0)/(SORT(VAR/NSTRAT))
        NUM=I-4
        PRINT 403,NUM,ADMEAN,VAR,TSTAT
    1   CONTINUE
  401   FORMAT(1HO,49X,31HRESPONSES PER BIPOLAR ADJECTIVE///)
  402   FORMAT(1H ,37X,14HADJECTIVE PAIR,6X,4HMEAN,6X,
                                        8HVARIANCE,6X,11HT-STATISTIC)
  403   FORMAT(44X,I2,11X,F6.3,6X,F6.3,9X,F7.4//)
        RETURN
        END
```

APPENDIX G

RESPONSES FOR EACH STRATUM PER BIPOLAR ADJECTIVE

TABLE a

Total Lieutenant Response Per Bipolar Adjective Pair For Section IIA of the Lutz/Apple Questionnaire

Adjective Pair	Mean	Variance	t-Statistic
Good - Bad	5.881	1.278	10.782
Harmonious - Dissonant	5.667	1.203	9.847
Worthless - Valuable	5.405	1.613	7.170
Kind - Cruel	5.238	0.966	8.162
Unpleasant - Pleasant	5.714	1.233	10.003
Happy - Sad	5.262	1.418	6.869
Ferocious - Peaceful	5.286	0.990	8.376
Tense - Relaxed	4.976	1.877	4.617
Nice - Awful	5.286	0.990	8.376
Honest - Dishonest	5.143	2.223	4.968
Unfair - Fair	5.262	2.003	5.779
Willing - Unwilling	5.119	2.010	5.116
Healthy - Sick	5.143	1.589	5.876
Loud - Soft	4.214	1.294	1.221
Agitated - Calm	4.214	2.319	0.912

The null hypothesis for all bipolar adjective pairs shown above was:

$$H_o: \mu \leq 4.0$$

Significance Level	t-Critical*
.05	1.684
.01	2.423
.005	2.704

*Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE b

Total Captain Response Per Bipolar Adjective Pair
For Section IIA of the Lutz/Apple Questionnaire

Adjective Pair	Mean	Variance	t-Statistic
Good - Bad	6.150	0.918	24.575
Harmonious - Dissonant	5.858	1.165	18.863
Worthless - Valuable	5.642	1.307	15.727
Kind - Cruel	5.433	1.542	12.645
Unpleasant - Pleasant	5.775	1.537	15.683
Happy - Sad	5.358	1.677	11.490
Ferocious - Peaceful	5.325	1.549	11.662
Tense - Relaxed	5.275	2.336	9.139
Nice - Awful	5.517	1.243	14.900
Honest - Dishonest	5.517	2.386	10.755
Unfair - Fair	5.675	2.120	12.601
Willing - Unwilling	5.058	2.812	6.914
Healthy - Sick	5.475	1.798	12.051
Loud - Soft	4.508	1.529	4.503
Agitated - Calm	4.767	2.432	5.385

The null hypothesis for all bipolar adjective pairs shown above was:

$$H_o: \mu \leq 4.0$$

Significance Level	t-Critical*
.05	1.658
.01	2.358
.005	2.617

*Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE c

Total Major Response Per Bipolar Adjective Pair
For Section IIA of the Lutz/Apple Questionnaire

Adjective Pair	Mean	Variance	t-Statistic
Good - Bad	6.213	0.867	16.294
Harmonious - Dissonant	5.894	1.141	12.156
Worthless - Valuable	5.766	1.140	11.341
Kind - Cruel	5.298	0.953	9.115
Unpleasant - Pleasant	5.723	1.552	9.483
Happy - Sad	5.362	1.062	9.059
Ferocious - Peaceful	5.340	0.838	10.038
Tense - Relaxed	5.447	1.687	7.636
Nice - Awful	5.532	1.080	10.104
Honest - Dishonest	6.170	0.170	17.663
Unfair - Fair	6.085	0.949	14.673
Willing - Unwilling	5.383	1.285	8.364
Healthy - Sick	5.702	1.388	9.906
Loud - Soft	4.426	1.728	2.219
Agitated - Calm	5.106	1.445	6.310

The null hypothesis for all bipolar adjective pairs shown above was:

$$H_o: \mu \leq 4.0$$

Significance Level	t-Critical*
.05	1.684
.01	2.423
.005	2.704

*Source: CRC Standard Mathematical Tables, p. 610
Percentage Points, Student's t-Distribution

TABLE d

Total Lt. Colonel Response Per Bipolar Adjective Pair
For Section IIA of the Lutz/Apple Questionnaire

Adjective Pair	Mean	Variance	t-Statistic
Good - Bad	6.297	1.604	11.035
Harmonious - Dissonant	5.892	1.600	9.100
Worthless - Valuable	6.027	0.860	13.293
Kind - Cruel	5.757	1.467	8.823
Unpleasant - Pleasant	6.162	0.973	13.333
Happy - Sad	5.676	1.725	7.760
Ferocious - Peaceful	5.973	0.860	12.938
Tense - Relaxed	5.459	2.644	5.460
Nice - Awful	5.405	1.914	6.179
Honest - Dishonest	5.703	2.048	7.237
Unfair - Fair	6.243	1.023	13.494
Willing - Unwilling	5.622	1.908	7.140
Healthy - Sick	5.784	2.174	7.359
Loud - Soft	4.703	2.326	2.803
Agitated - Calm	5.622	1.908	7.140

The null hypothesis for all bipolar adjective pairs shown above was:

$$H_0: \mu \leq 4.0$$

Significance Level	t-Critical*
.05	1.697
.01	2.457
.005	2.750

*Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE e

Total Colonel Response Per Bipolar Adjective Pair
For Section IIA of the Lutz/Apple Questionnaire

Adjective Pair	Mean	Variance	t-Statistic
Good - Bad	6.622	0.331	30.560
Harmonious - Dissonant	6.244	0.507	21.144
Worthless - Valuable	6.289	0.710	18.221
Kind - Cruel	5.667	1.136	10.488
Unpleasant - Pleasant	6.333	0.727	18.354
Happy - Sad	5.822	0.786	13.789
Ferocious - Peaceful	5.711	0.937	11.856
Tense - Relaxed	5.600	1.700	8.232
Nice - Awful	5.889	0.646	15.759
Honest - Dishonest	6.311	0.446	23.202
Unfair - Fair	6.400	0.609	20.629
Willing - Unwilling	6.089	1.265	12.461
Healthy - Sick	6.222	0.813	16.532
Loud - Soft	4.711	1.846	3.511
Agitated - Calm	5.600	1.245	9.618

The null hypothesis for all bipolar adjective pairs shown above was:

$$H_o: \mu \leq 4.0$$

Significance Level	t-Critical*
.05	1.684
.01	2.423
.005	2.704

*Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

APPENDIX H

COMPUTER PROGRAM TO CALCULATE MEAN, VARIANCE AND t-STATISTICS FOR HYPOTHESIS TWO

```
C       RESPONSES TO THE DIFFERENCES IN THE TWO PERSONNEL SYSTEMS
        *****MAIN PROGRAM*****
        COMMON OBS,M,N,K,DIFMEAN,DIFVAR,TSTAT
        DIMENSION OBS(300,14)
        M=1
        N=291
        DO 1 I=1,N
        READ 100,(OBS(I,II),II=1,14)
    1   CONTINUE
        DO 2 K=1,14
        PRINT 200,K
        PRINT 201
        M=1
        N=291
        CALL STATS
        PRINT 202,DIFMEAN,DIFVAR,TSTAT
        M=1
        N=42
        CALL STATS
        PRINT 203,DIFMEAN,DIFVAR,TSTAT
        M=43
        N=162
        CALL STATS
        PRINT 204,DIFMEAN,DIFVAR,TSTAT
        M=163
        N=209
        CALL STATS
        PRINT 205,DIFMEAN,DIFVAR,TSTAT
        M=210
        N=246
        CALL STATS
        PRINT 206,DIFMEAN,DIFVAR,TSTAT
        M=247
        N=291
        CALL STATS
        PRINT 207,DIFMEAN,DIFVAR,TSTAT
    2   CONTINUE
  100   FORMAT(20X,14F1.0)
  200   FORMAT(1H1,50X,23H*****DIFFERENCE NUMBER ,I2,6H*****)
  201   FORMAT(37X,14HRESPONSE GROUP,6X,4HMEAN,6X,8HVARIANCE,
                                        6X,11HT-STATISTIC///)
  202   FORMAT(38X,13HTOTAL OFFICER,5X,F6.3,6X,F6.3,9X,F8.4//)
  203   FORMAT(38X,10HLIEUTENANT,8X,F6.3,6X,F6.3,9X,F8.4//)
  204   FORMAT(38X,7HCAPTAIN,11X,F6.3,6X,F6.3,9X,F8.4//)
  205   FORMAT(38X,5HMAJOR,13X,F6.3,6X,F6.3,9X,F8.4//)
  206   FORMAT(38X,6HLT COL,12X,F6.3,6X,F6.3,9X,F8.4//)
  207   FORMAT(38X,7HCOLONEL,11X,F6.3,6X,F6.3,9X,F8.4//)
        STOP
        END
```

```
C       *****CALCULATION OF THE MEAN, VARIANCE, AND T-
                                                    T-STATISTIC*****
        SUBROUTINE STATS
        COMMON OBS,M,N,K,DIFMEAN,DIFVAR,TSTAT
        DIMENSION OBS(300,14)
        NSTRAT=N-M+1
        DIFSUM=0.
C       ***THE MEAN CALCULATION***
        DO 1 J=M,N
        DIFSUM=DIFSUM+OBS(J,K)
    1   CONTINUE
        DIFMEAN=DIFSUM/NSTRAT
C       ***THE VARIANCE CALCULATION***
        VARSUM=0.
        DO 2 L=M,N
        VARSUM=VARSUM+((OBS(L,K)-DIFMEAN)**2)
    2   CONTINUE
        DIFVAR=VARSUM/(NSTRAT-1)
        ***THE T-STATISTIC CALCULATION***
        TSTAT=(DIFMEAN-4.0)/(SQRT(DIFVAR/NSTRAT))
        RETURN
        END
```

APPENDIX I

RESULTS OF STATISTICAL TEST OF HYPOTHESIS TWO FOR EACH INHERENT DIFFERENCE BETWEEN THE MILITARY AND CIVIL SERVICE PERSONNEL SYSTEMS

TABLE a

Average Scores For Air Force Officer's Perception Of Military Pay Policies As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	4.753	3.690	6.683	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	4.429	4.007	1.388	1.684
Captain	4.900	3.923	4.978	1.658*
Major	4.447	3.166	1.722	1.684*
Lt. Colonel	4.757	3.300	2.534	1.697*
Colonel	4.978	3.659	3.429	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE b

Average Scores For Air Force Officer's Perception Of Military Leave Policies As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	4.065	4.627	.518	1.645
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	4.143	5.491	.395	1.684
Captain	4.417	4.867	2.069	1.658*
Major	3.809	4.202	-0.640	-1.684
Lt. Colonel	3.432	3.363	-1.883	-1.697*
Colonel	3.844	4.271	-0.505	-1.684

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for the total officer, Lieutenant and Captain response groups was:

$$H_o: \mu \leq 4.0$$

The null hypothesis for the Major, Lt. Colonel and Colonel response groups was:

$$H_o: \mu \geq 4.0$$

*Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE c

Average Scores For Air Force Officer's Perception Of Medical Benefits As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	6.289	1.606	30.807	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	6.095	1.991	9.624	1.684*
Captain	6.333	1.737	19.396	1.658*
Major	6.234	1.444	12.745	1.684*
Lt. Colonel	6.351	1.623	11.227	1.697*
Colonel	6.356	1.143	14.777	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE d

Average Scores For Air Force Officer's Perception Of The Military Retirement Plan As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	5.818	2.329	20.321	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	5.318	2.681	5.466	1.684*
Captain	6.008	2.193	14.856	1.658*
Major	5.979	1.978	9.646	1.684*
Lt. Colonel	5.622	2.631	6.082	1.697*
Colonel	5.711	2.346	7.493	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE e

Average Scores For Air Force Officer's Perception Of Military Promotion Policies As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	5.162	2.846	11.745	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	4.463	3.211	2.325	1.684*
Captain	5.142	2.576	7.792	1.658*
Major	5.340	2.577	5.724	1.684*
Lt. Colonel	5.108	3.766	3.473	1.697*
Colonel	5.556	2.571	6.508	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE f

Average Scores For Air Force Officer's Perception Of Military Transfer Policies As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	3.639	4.411	-2.931	-1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	4.262	4.686	.784	1.684
Captain	3.900	4.007	-0.547	-1.658
Major	3.064	4.235	-3.119	-1.684*
Lt. Colonel	2.811	3.769	-3.726	-1.697*
Colonel	3.644	4.871	-1.081	-1.684

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for the total officer, Captain, Major, Lt. Colonel and Colonel response groups was:

$$H_o: \mu \geq 4.0$$

The null hypothesis for the Lieutenant response group was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE g

Average Scores For Air Force Officer's Perception Of Military Dress and Personal Appearance Standards As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	4.990	3.149	9.515	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	4.429	3.666	1.451	1.684
Captain	4.817	3.848	4.560	1.658*
Major	5.170	1.927	5.779	1.684*
Lt. Colonel	5.135	2.176	4.681	1.697*
Colonel	5.667	2.227	7.492	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \leq 4.0$$

**CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE h

Average Scores For Air Force Officer's Perception Of Periodic Performance Evaluations Provided For By The Military Personnel System As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	4.639	3.231	6.066	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	4.524	4.012	1.695	1.684*
Captain	4.625	3.043	3.925	1.658*
Major	4.596	2.768	2.455	1.684*
Lt. Colonel	4.486	3.590	1.562	1.697
Colonel	4.956	3.362	3.496	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_0: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE i

Average Scores for Air Force Officer's Perception
Of Eligibility For Training As Compared To
The Same Aspect of the Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	5.416	2.375	15.673	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	5.071	3.385	3.774	1.684*
Captain	5.575	2.129	11.825	1.658*
Major	5.383	2.111	6.526	1.684*
Lt. Colonel	5.351	2.568	5.130	1.697*
Colonel	5.400	2.245	6.267	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE j

Average Scores For Air Force Officer's Perception Of Eligibility For Duties Not Connected With The Primary Job Assignment As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	4.000	4.297	0	1.645
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	3.976	4.121	-0.076	-1.684
Captain	4.033	4.654	0.169	1.658
Major	4.149	3.999	0.511	1.684
Lt. Colonel	3.892	4.266	-0.318	-1.697
Colonel	3.867	4.164	-0.438	-1.684

The null hypothesis for the Lieutenant, Lt. Colonel and Colonel response groups was:

$$H_o: \mu \geq 4.0$$

The null hypothesis for the Captain and Major response groups was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE k

Average Scores For Air Force Officer's Perception Of Procedures For Resolving Grievances As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	4.048	3.632	0.431	1.645
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	3.976	3.975	-0.077	-1.684
Captain	4.275	3.512	1.608	1.658
Major	3.787	3.389	-0.792	-1.684
Lt. Colonel	3.514	3.757	-1.527	-1.697
Colonel	4.222	3.631	0.782	1.684

The null hypothesis for the total officer, Captain and Colonel response groups was:

$$H_o: \mu \leq 4.0$$

The null hypothesis for the Lieutenant, Major and Lt. Colonel response groups was:

$$H_o: \mu \geq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE 1

Average Scores For Air Force Officer's Perception Of Procedures For Overtime As Compared To The Same Aspect of the Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	2.701	3.390	-12.036	-1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	3.119	3.815	-2.923	-1.684*
Captain	2.967	3.764	-5.835	-1.658*
Major	2.511	2.603	-6.329	-1.684*
Lt. Colonel	1.649	1.623	-11.227	-1.697*
Colonel	2.667	3.227	-4.979	-1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \geq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE m

Average Scores For Air Force Officer's Perception Of Procedures For Use Of Base Facilities As Compared To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	6.213	1.506	30.761	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	6.071	1.922	9.684	1.684*
Captain	6.083	1.758	17.214	1.658*
Major	6.298	1.257	14.050	1.684*
Lt. Colonel	6.905	0.748	16.920	1.697*
Colonel	6.444	1.298	14.393	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

TABLE n

Average Scores For Air Force Officer's Perception
Of Provisions For Physical Fitness As Compared
To The Same Aspect Of The Civil Service System

Response Group	Mean	Variance	t Statistic	t Critical**
Total Officer	5.433	2.936	14.266	1.645*
- - - - - - (Average Scores by Stratification) - - - - -				
Lieutenant	5.452	2.254	6.270	1.684*
Captain	5.325	3.045	8.318	1.658*
Major	5.383	2.763	5.704	1.684*
Lt. Colonel	5.378	3.464	4.505	1.697*
Colonel	5.800	3.118	6.838	1.684*

*Statistics indicate rejection of the null hypothesis.

The null hypothesis for all response groups was:

$$H_o: \mu \leq 4.0$$

**Source: CRC Standard Mathematical Tables, p. 610, Percentage Points, Student's t-Distribution

APPENDIX J

BMD02R COMPUTER PROGRAM DATA

TABLE a

Variables Used In The BMD02R Multiple Regression Program

Variable Number	Meaning of the Variable	Variable Type*
1 . . .	(These variables were used to input raw data only)	
19		
20	Score for the officer's perception of Pay policies	I
21	Score for the officer's perception of Leave policies	I
22	Score for the officer's perception of Medical Benefits	I
23	Score for the officer's perception of Retirement policies	I
24	Score for the officer's perception of Promotion policies	I
25	Score for the officer's perception of Transfer policies	I
26	Score for the officer's perception of Dress and Personal Appearance policies	I
27	Score for the officer's perception of Periodic Performance Evaluations	I
28	Score for the officer's perception of his Eligibility for Training	I
29	Score for the officer's perception of his Eligibility for Duties not associated with his Primary Job Assignment	I
30	Score for the officer's perception of Grievance Procedures	I
31	Score for the officer's perception of Overtime policies	I

TABLE a (continued)

Variable Number	Meaning of the Variable	Variable Type*
32	Score for the officer's perception of his Use of Base Facilities	I
33	Score for the officer's perception of Physical Fitness Requirements	I
34	For machine use to calculate the dependent variable	-
35	Score for the officer's perception of his relationship with civil servants	D
(The following are Dummy Variables derived from Collected Background Information)		
	RANK	
36	1 if Captain; 0 otherwise	I
37	1 if Major; 0 otherwise	I
38	1 if Lt. Colonel; 0 otherwise	I
39	1 if Colonel; 0 otherwise	I
	AFSC	
40	1 if 40XX; 0 otherwise	I
41	1 if 46XX; 0 otherwise	I
42	1 if 60XX; 0 otherwise	I
43	1 if 62XX; 0 otherwise	I
44	1 if 63XX; 0 otherwise	I

TABLE a (continued)

Variable Number	Meaning of the Variable	Variable Type*
45	1 if 64XX; 0 otherwise	I
46	1 if 65XX; 0 otherwise	I
47	1 if 66XX; 0 otherwise	I
48	1 if 0C4X; 0 otherwise	I
	AGE GROUP	
49	1 if 26 to 30; 0 otherwise	I
50	1 if 31 to 35; 0 otherwise	I
51	1 if 36 or over; 0 otherwise	I
	YEARS' EXPERIENCE	
52	1 if 1 to 3; 0 otherwise	I
53	1 if 4 to 8; 0 otherwise	I
54	1 if more than 8; 0 otherwise	I

*I denotes an independent variable

D denotes the dependent variable

TABLE b

Input Cards for BMD02R Program

```
PROBLM   SURVEY  291    35    50    19          1  15 YES YES YES          1
TRNGEN03411005000006
TRNGEN03411007000034
TRNGEN03411008000034
TRNGEN03411009000034
TRNGEN03411010000034
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TRNGEN03615001000002
TRNGEN03612036000037
TRNGEN03712037000038
TRNGEN03812038000039
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TRNGEN04115002000003
TRNGEN04015002000002
```

TABLE b (continued)

```
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TRNGEN04512045000046
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TRNGEN04712047000048
TRNGEN05115003000004
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TRNGEN04912049000050
TRNGEN05012050000051
TRNGEN05415004000004
TRNGEN05315004000003
TRNGEN05215004000002
TRNGEN05212052000053
TRNGEN05312053000054
LABELS  35RELATN  20PAY     21LEAVE   22MEDICL  23RETIRE  24PROMOT  25TRNFER
LABELS  26DRESS   27EVALUT  28TRAING  29ADDUTY  30GRIEVE  31OVTIME  32FACILI
LABELS  33PHYSIC
(F1.0,F2.0,33F1.0)
SUBPRO  35                                    14  YES  YES  YES
CONDEI 11111111111111111111                11
EXPLI20212223242526272829303132 33
FINISH
```

TABLE c

Summary of Results from the BMD02R

Linear Multiple Regression

(Listing only those variables included in the final equation)

Variable Number	Regression Coefficient (b_i)	Standard Error of the Estimate
20	0.03153	0.03393
21	-0.02237	0.02645
22	0.01319	0.05236
23	0.04160	0.03919
24	0.02266	0.04012
25	-0.01077	0.02672
26	0.03487	0.03310
27	-0.01072	0.03437
28	0.03166	0.03931
29	-0.02615	0.02719
30	0.06539	0.03173
32	0.05511	0.05552
33	0.02482	0.03685
36	-0.03413	0.19810
37	0.08827	0.28905
38	0.26939	0.31846
39	0.43614	0.32947
40	0.05319	0.18064
41	0.49147	0.27860
42	-0.18784	0.31883
43	0.17760	0.35372
44	0.45291	0.61789
46	0.22320	0.18508
47	0.17788	0.18289
48	0.07518	0.29972
49	0.15022	0.22692
50	0.26389	0.24761
51	0.23640	0.30681
52	-0.05636	0.12602
53	0.25821	0.17078
54	0.13067	0.23131

The final value for the coefficient of Multiple Determination (R^2) = 0.1934

APPENDIX K

TEST OF SIGNIFICANCE OF THE MULTIPLE COEFFICIENT RHO^2

Test of the Significance of the Multiple Coefficient of Determination RHO^2

The observed R^2 value is converted to an F-statistic for hypotheses testing by the following equation:

$$\text{F-statistic} = \frac{R^2}{1-R^2} \cdot \frac{N-P}{P-1}$$

where N is the number of observations in the sample and P is the number of parameters in the regression equation. This computed F-statistic is then compared to a theoretical F-value obtained from an F-table and selected for the desired level of significance. If the computed F-statistic is greater than the theoretical F-value, the null hypothesis is rejected.

The Testing of RHO^2

The hypothesis to be tested is symbolically stated below in the null form:

$$H_o: RHO^2 = 0$$

The following values were derived from the sample:

$$R^2 = .1934$$
$$N = 291$$
$$P = 32$$

$$\text{F-statistic} = \frac{.1934}{1-.1934} \cdot \frac{291-32}{32-1}$$

$$= 2.003$$

At the .05 level of significance, the theoretical F-value is 1.46 which is less than the F-calculated value of 2.003. Therefore, the null hypothesis is rejected at the .05 level of significance.

APPENDIX L

DATA BASE USED IN THESIS

A LISTING OF CODED DATA USED IN THIS THESIS

•TO DECODE: REFER TO APPENDIX D•

```
107114434444344354447777314443423 3
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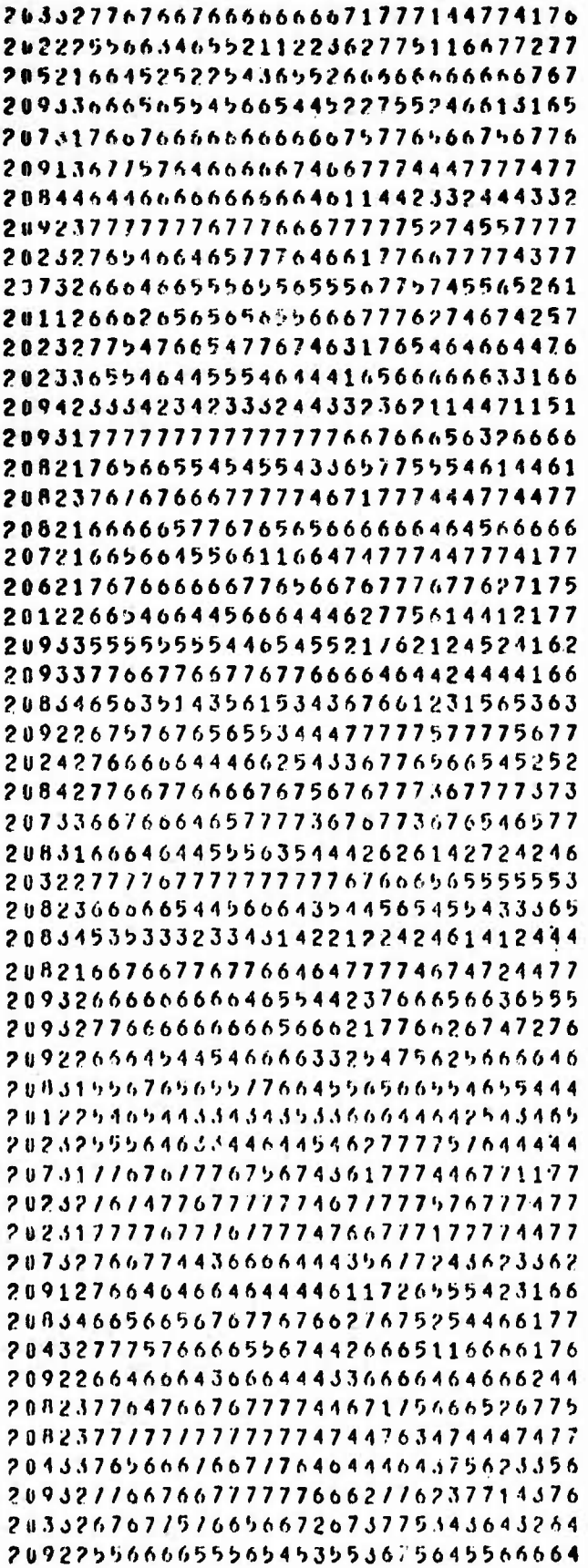

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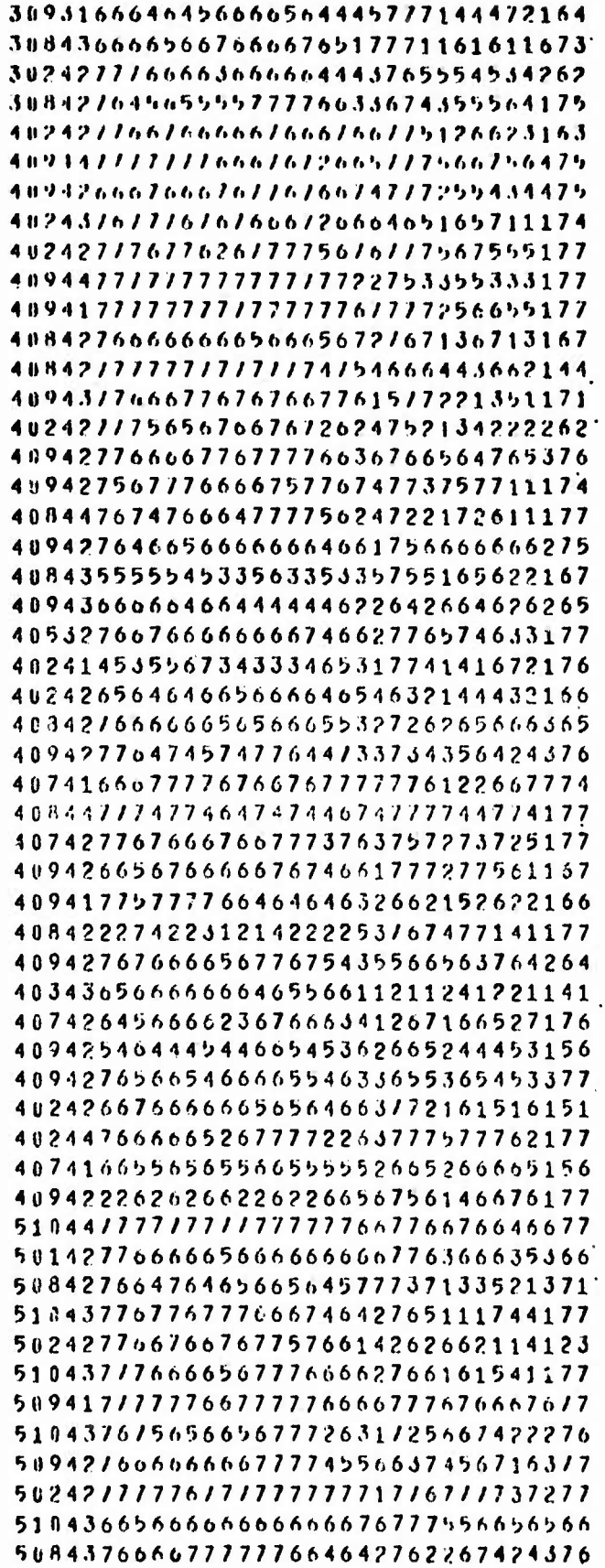

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BIBLIOGRAPHY

BOOKS

1. Borg, Marcus. Conflict and Social Change. Minneapolis: Augsburg Publishing House, 1971.

2. Borklund, C. E. The Department of Defense. New York: Fredrick A. Praeger, Publisher, 1968.

3. Coates, Charles H. and Pellegrin, Roland, Jr. Military Sociology. University Park, Md.: The Social Science Press, 1965.

4. Davidson, Sol M. The Power of Friction in Business. New York: Frederick Fell, Inc., 1967.

5. Dixon, W. J. BMD Biomedical Computer Programs. Los Angeles: University of California Press, 1970.

6. Freeman, Frank S. Theory and Practice of Psychological Testing. New York: Holt, Rinehart, and Winston, Inc., 1964.

7. Gilmer, B. Von Haller, et al. Industrial and Organizational Psychology. New York: McGraw-Hill Book Company, 1971.

8. Grove, Phillip Babcock, ed. Webster's Third New International Dictionary. Springfield, Massachusetts: G. & C. Mersian Company, 1965.

9. Hamburg, Morris. Statistical Analysis for Decision Making. New York: Harcourt, Brace & World, Inc., 1970.

10. Hodge, Billy J. and Johnson, Herbert J. Management and Organizational Behavior. New York: John Wiley & Sons, Inc., 1970.

11. Kast, Fremont E. and Rosenzweig, James E. Organization and Management: A Systems Approach. New York: McGraw-Hill Book Company, 1970.

12. Kerlinger, Fred N. Foundations of Behavioral Research. New York: Holt, Rinehart, and Winston, Inc., 1964.

13. Kintner, William R. Forging a New Sword. New York: Harper & Brothers, 1958.

14. Litterer, Joseph A. Organizations: Systems, Control and Adaptation: Volume II. New York: John Wiley & Sons, Inc., 1965.

15. _____. The Analysis of Organizations. New York: John Wiley & Sons, Inc., 1965.

16. Osgood, Charles E., Suci, George J. and Tannenbaum, Percey H. The Measurement of Meaning. Urbana: University of Illinois Press, 1957.

17. Porter, Donald E. and Applewhite, Philip B. Organizational Behavior and Management. Scranton, Pennsylvania: International Textbook Company, 1964.

18. Richmond, Samuel R. Statistical Analysis. New York: The Ronald Press Company, 1964.

19. Rummel, Francis J. and Ballaine, Wesley C. Research Methodology in Business. New York: Harper & Row, 1963.

20. Selby, Samuel M. CRC Standard Mathematical Tables. Cleveland, Ohio: The Chemical Rubber Company, 1971.

21. Siegel, Sidney. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

22. Smith, Mark E. III and Johns, Claude J., Jr. American Defense Policy. United States Air Force Academy, Colorado: The John Hopkins Press, 1968.

23. Snider, James G. and Osgood, Charles E. Semantic Differential Technique. Chicago: Aldine Publishing Company, 1969.

24. Sutermeister, Robert A. People and Productivity. New York: McGraw-Hill Book Company, 1969.

25. Tannenbaum, Arnold S. Social Psychology of the Work Organization. Belemont, California: Wadsworth Publishing Company, Inc., 1962.

26. Tiffin, Joseph and McCormick, Ernest J. Industrial Psychology. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965.

ARTICLES, MAGAZINES AND NEWSPAPERS

27. Air Force Times; Vol. 33, No. 22, January 3, 1973; "Regular Military Compensation Table."

28. The Dayton Daily News; Final Edition. August 20, 1972; "Everybody Wears Blue To New Base Commander."

29. Skywrighter; Vol. 13, No. 40, October 6, 1972; "AFLC Commander's Philosophy."

30. Stephenson, R. W. and Gantz, B. S. "Conflicting Objectives in a Research and Development Organization." I.E.E.E. Transactions on Engineering Management. EM-12, No. 4, December, 1965.

31. The Wall Street Journal; Eastern Edition, November 12, 1962; "Diplomatic Dissent: Restive 'Young Turks' Lead Reform Movement at State Department."

UNPUBLISHED MATERIALS

32. Gordon, Lieutenant Colonel Carl L. "SIMFIT - A Curve Fitting Program For Use in the Course 'Simulation for Logistics Managers' QS6.44." School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, undated.

33. Graw, Captain Paul H. and McDonald, Captain Charles W. "A Study of Aircraft Maintenance Officer Attitudes Toward the Dimensions of the Work Itself." Master's Thesis, School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, 1971.

34. Hegner, Edward A. "The Individual and the USAF Organization: A Study of Mutual Frustration." Thesis, Air War College, Air University, Maxwell AFB, Alabama, 1965.

35. Ikemoto, Captain William Y. and Summers, Captain Larry E. "An Analysis of Late Deliveries of Stocked Air Force Logistics Command Air Material Area Depot Supplies." Master's Thesis, School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, 1972.

36. Lyng, Major Reginald W. and Smith, Captain Arthur D. "Analysis of Factors Influencing Decisions to Enter the AFIT Graduate Logistics Program." Master's Thesis, School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, 1972.

37. Markal, Captain Thomas J. and Viney, Captain Daniel C. "An Analysis of Attitudes Toward Intrinsic Aspects of the Air Force Logistics Command." Master's Thesis, School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, 1971.

38. McKusker, Kent M. "Human Relations Guide for Air Force Managers." Research Report, Air War College, Air University, Maxwell AFB, Alabama, 1966.

39. Nierstheimer, Paul H. "Problems Associated With the Management of Military and Civilian Working Force." Thesis, Air War College, Air University, Maxwell AFB, Alabama, 1964.

40. Palmer, Major Raymond R. and Vogel, Captain John M. "Comparative Analysis of Job Associated Need Deficiencies of Junior Officers in the Air Force Logistics Command and Operational Commands." Master's Thesis, School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, 1970.

41. Patzig, Major William D. "A Study of Civil Service-Military Relationships." Research Paper, School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio.

42. Poace, William J. "Employee-Management Relations; Vital to Today's Air Force." Thesis, Air War College, Air University, Maxwell AFB, Alabama, 1971.

43. Quinn, James L. "Personnel Management: Human Resources Research." Research Report, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, 1971.

44. SAAMA, JOAC Junior Officer Retention Committee. "A Survey of Factors Influencing Junior Officer Retention at Kelly Air Force Base." Kelly AFB, Texas, 1968.

45. Wagner, Robert K. "An Investigation of Government Employee Perceptions of Their Organizational Climate." Master's Thesis, School of Engineering, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, 1971.

PUBLISHED REPORTS

46. James, Lt. Colonel F. E. "A Matrix Solution for the General Linear Regression Model." Technical Report No. 4, School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB, Ohio, 1971.

47. DSD:E20 Report; Occupational Series by Category/Grade as of 30 June 1972.

U.S. GOVERNMENT DOCUMENTS

48. Commission on Organization of the Executive Branch of the Government. Business Organization of the Department of Defense. Washington, D.C.: U.S. Government Printing Office, 1955.

49. U.S. Civil Service Commission. Federal Personnel Manual. Washington, D.C.: U.S. Government Printing Office, 1969.

50. _____. Obligations, Benefits and Privileges of Membership in the United States Civil Service Retirement System. Standard Form 105. Washington, D.C.: U.S. Government Printing Office, 1970.

51. _____. Bureau of Retirement, Insurance and Occupational Health. The Federal Employees Health Benefits Program. Standard Form 2809-A. Washington, D.C.: U.S. Government Printing Office, 1969.

52. U.S. Department of the Air Force. AF Form 219, "Record of Duty." AF Regulation 30-17. Washington, D.C.: U.S. Government Printing Office, 1970.

53. _____. AFLC Junior Officer Development. Headquarters AFLC (IG), Draft Functional Inspection Report NN73-7, undated.

54. _____. Appeal and Grievance Procedures. AF Regulation 40-771. Washington, D.C.: U.S. Government Printing Office, 1971.

55. _____. Basic Authorities and Responsibilities for Civilian Employee Training and Development. AF Regulation 40-410. Washington, D.C.: U.S. Government Printing Office, 1972.

56. _____. Civilian Mobility. AF Regulation 40-303. Washington, D.C.: U.S. Government Printing Office, 1972.

57. _____. Civilian Personnel - Retirement. AF Regulation 40-831. Washington, D.C.: U.S. Government Printing Office, 1970.

58. _____. Civilian Personnel Leave Administration. AFR 40-630. Washington, D.C.: U.S. Government Printing Office, 1968.

59. _____. Details Within the Air Force. AF Regulation 40-321. Washington, D.C.: U.S. Government Printing Office.

60. _____. Dress and Personal Appearance of Air Force Personnel. AF Manual 35-10. Washington, D.C.: U.S. Government Printing Office, 1972.

61. _____. Exchange Services - General Policies. AF Regulation 147-7. Washington, D.C.: U.S. Government Printing Office, 1972.

62. _____. Exchange Service - Operating Policies. AF Regulation 147-14. Washington, D.C.: U.S. Government Printing Office, 1972.

63. _____. How Complaints Are Presented and Acted Upon. AF Regulation 123-11. Washington, D.C.: U.S. Government Printing Office, 1971.

64. _____. Income Withholding and Social Security Taxes. AF Manual 40-1, Section 5281. Washington, D.C.: U.S. Government Printing Office, 1967.

65. _____. Leave Policy and Procedures. AFM 177-373, Volume III. Washington, D.C.: U.S. Government Printing Office, 1971.

66. _____. Medical Administration - Persons Authorized Medical Care. AFR 168-1. Washington, D.C.: U.S. Government Printing Office, 1972.

67. _____. The Merit Promotion Program. AF Regulation 40-335. Washington, D.C.: U.S. Government Printing Office, 1969.

68. _____. Military Educational System. AF Manual 53-1. Washington, D.C.: U.S. Government Printing Office, 1969.

69. _____. Military Pay and Allowances Entitlements Manual. Washington, D.C.: U.S. Government Printing Office, 1967.

70. _____. Officer Assignment Manual. AF Manual 36-11. Washington, D.C.: U.S. Government Printing Office, 1970.

71. _____. Officer Career Management. AF Manual 36-23. Washington, D.C.: U.S. Government Printing Office, 1971.

72. _____. Officer Evaluation Reports. AF Manual 36-10. Washington, D.C.: U.S. Government Printing Office, 1972.

73. _____. Overtime Work and Holiday Observance. AF Regulation 40-552. Washington, D.C.: U.S. Government Printing Office, 1971.

74. _____. Performance Evaluations and Resulting Personnel Actions. AF Regulation 40-451. Washington, D.C.: U.S. Government Printing Office, 1970.

75. _____. Setting Rates of Pay. AF Regulation 40-530. Washington, D.C.: U.S. Government Printing Office, 1971.

76. _____. Standards of Civilian Dress and Appearance. AF Regulation 30-16. Washington, D.C.: U.S. Government Printing Office, 1971.

77. _____. Step Increases. AF Regulation 40-527. Washington, D.C.: U.S. Government Printing Office, 1969.

78. _____. Service Retirements. AF Manual 35-7. Washington, D.C.: U.S. Government Printing Office, 1971.

79. _____. USAF Physical Fitness and Weight Control Program. AF Regulation 50-49. Washington, D.C.: U.S. Government Printing Office, 1972.

INTERVIEWS

80. Collipi, Major T. C. Chief, Program Division, Deputy Chief of Staff, Plans and Operations, Headquarters AFLC. Wright-Patterson AFB, Ohio. Personal Interview, 26 January 1973.

81. Golembiewski, TSgt. Toby. Military Personnel Staffing Technician, Headquarters AFLC Military Personnel (DPMAO). Wright-Patterson AFB, Ohio. Personal Interview, 5 June 1972.

82. Langley, William P. Personnel Staffing Specialist, Civilian Personnel Branch, 2750th ABW, Wright-Patterson AFB, Ohio. Personal Interview, 3 January 1973.

83. Murrel, E. Employee Relations Assistant, Civilian Personnel Branch (DPCRA), 2750th ABW, Wright-Patterson AFB, Ohio. Personal Interview, 4 December 1972.

OTHER PUBLICATIONS

84. _____. "Ohio's Miami Valley Salutes Wright-Patterson Air Force Base." Boon Publications, Inc., undated.

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